

Silver[®]

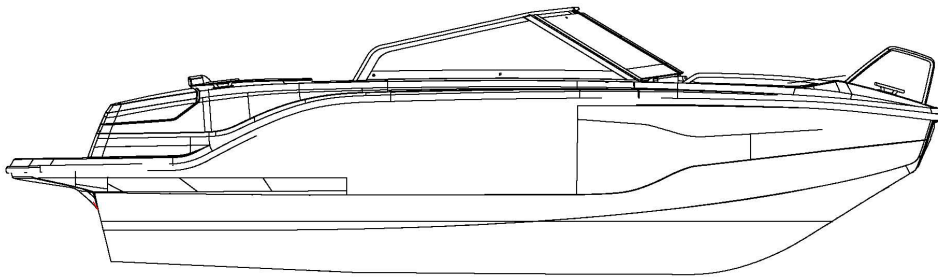
TIME WELL SPENT — SINCE 1991



Owner's manual

Puma BR | Tiger BR | Tiger DC | Viper DC | Raptor DC

Silver **PUMA^{BR}**



Silver Puma Bowrider

Owner's manual

FOREWORD

Congratulations on choosing a Silver Boat!

This manual will familiarise you with the features of your new vessel and help with its care and maintenance. It has been written to help you learn to handle your craft safely and avoid any problems. Make sure that you have received manuals for all equipment fitted on your boat. Supplement this manual with the specifications and manuals of equipment you purchase later for your boat. Space has been left for your own notes at the end of the manual. Please read this manual carefully and familiarise yourself with the craft before using it.

If this is your first craft, or you are changing to a type of craft you are not familiar with, please ensure that you obtain sufficient handling and operating experience before assuming command of the craft. This is highly important for your own comfort and safety. Your dealer or national sailing association or yacht club will be happy to advise you of local boating schools or competent instructors.

This owner's manual is not a detailed maintenance or troubleshooting guide. In case of difficulty please contact the dealer. Always use qualified and competent people for the maintenance, repair and modification of the boat. Modifications that may affect the safety characteristics of the craft must be assessed, executed and documented by competent people. The manufacturer is not responsible for modifications they have not approved.

Always keep your boat in a good condition and be aware that the boat requires maintenance and servicing. Any craft, no matter how strong it may be, can be severely damaged if not used properly. Always adjust the speed and direction of the craft to prevailing weather conditions.

We wish you enjoyable and relaxing times on board your Puma Bowrider

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Please keep this user manual in a secure place, and hand it over to the new owner if you sell the craft.

Table of contents

1 General	6
1.1 DECLARATION OF CONFORMITY	7
2 Definitions	9
3 Warranty	9
4 Before use	9
4.1 Registration	9
4.2 Insurance	9
5 Characteristics and use of your boat	10
5.1 General	10
5.2 Basic information	10
5.3 Maximum recommend number of passengers	13
5.4 Loading	13
5.5 Engine and propeller	13
5.6 Prevention of water incursion and stability	14
5.6.1 Hull and deck through fittings and closing valves	14
5.6.2 Stability and buoyancy	16
5.7 Preventing fires and explosion hazards	16
5.7.1 Refuelling	16
5.7.2 Fire protection	17
5.8 Main power switches and circuit breakers	17
5.9 Operation	19
5.9.1 Controls	19
5.9.2 Emergency switch	19
5.9.3 Gearshift and throttle	19
5.9.4 Adjusting the trim angle	20
5.9.5 Trim flap system (additional equipment)	20
5.9.6 Starting the engine	21
5.9.7 Driving	21
5.9.8 Approaching and leaving the dock	22
5.9.9 Using the canopy	23
5.9.10 Windshield door	23
5.10 Proper use – other recommendations and guidelines	24
5.10.1 Man overboard	24
5.10.2 Securing loose equipment	24
5.10.3 Respect for the environment	24
5.10.4 Anchoring and mooring the boat	25
5.10.5 Towing	26
5.10.6 Trailer transport	26
5.10.7 Docking	27
6 Servicing and maintenance	28

6.1 Washing and waxing the boat	28
6.2 Care instructions for seat cushions	29
6.3 Care instructions for the canopy	29
6.4 Care instructions for the windshield	29
6.5 Care instructions for the stainless-steel components	29
6.6 Care instructions for the steering system	30
6.7 Care instructions for electrical components	30
6.8 Minor superficial repairs	30
7 Winter storage	31
7.1 Measures before winter storage	31
7.2 Measures before launching the boat	31
7.2.1 Antifouling	32
8 Layout	34
8.1 General lay-out	34
8.1 Fuel system	35
8.2 Steering system	36
8.3 Electrical system	36
8.4 Wiring diagrams	37

BEFORE YOU SET OFF

Familiarise yourself with this owner's manual.

Always check at least the following before leaving:

- **Weather conditions and forecast**
Take the wind, waves and visibility into account. Are the design category, size and equipment of your boat, as well as the skills of the skipper and crew, adequate for the waters you are headed for? Hull windows and hatches must be battened down during high wind and rough seas to prevent water incursion.
- **Loading and stability**
Do not overload the craft and distribute loads appropriately. Heavy items are to be placed in the storage compartments under the aft seat. Also note that the boat is less stable if people stand up when on board.
- **Passengers**
Ensure that there are personal flotation devices or lifejackets for all people on board. Agree on crew tasks before setting off.
- **Fuel and fuel system**
Make sure that the boat has enough fuel, including a 20 % reserve for heavy weather or other unforeseen eventualities.
- **Engine and manoeuvring equipment**
Check the function and condition of steering and remote control and carry out routine checks according to the engine manual.
- **Seaworthiness**
Check the boat's seaworthiness: no fuel or water leaks, safety equipment available on board, etc. Check that there is no water in the bilge.
- **Fastening of equipment**
Check that all onboard items are positioned so that they will stay in place even in rough seas and high winds. Please note that the seat cushions may fly overboard if they are not fixed properly with press studs.
- **Nautical charts**
Unless you are navigating in completely familiar waters, ensure you have nautical charts on board that cover a large enough area! Your boat is equipped with a chart plotter, so learn how to use it before setting off. Ensure that the plotter charts are of the latest edition.
- **Leaving the berth**
Agree with the crew who will release each mooring line, etc. Be careful not to let mooring lines or the anchoring line become fouled in the propeller during manoeuvring.
- **Obligatory equipment**
What is considered obligatory equipment varies between different countries. Find out what is required for your boat.

You will find additional instructions concerning the engine in the separate engine manual.

1 General

The owner's manual will help you familiarise yourself with the properties and features of your new boat and with its care and maintenance. Separate manuals for installed equipment are attached and are referred to in many sections of the owner's manual. You can supplement this user manual by adding the manuals of devices which are installed afterwards. There is also space for your own notes at the end of the manual.

The craft has a running serial number, a WIN-code (Watercraft Identification Number). The WIN-code can be found on the starboard side of the transom just below the bathing platform. We recommend that you write down the WIN-code in this manual. When contacting the dealer, please provide the WIN code and the type of craft. This helps in delivering the correct spare parts.

1.1 DECLARATION OF CONFORMITY

Recreational Craft Directive 2013/53/EC

Manufacturer: Oy Esmarin Composites Ltd.
The module used: B, EC type-approval

THE INSURANCE IS TAKEN OUT BY THE PERSON PLACING THE PRODUCT ON THE MARKET

Placed on the market by TerhiTec Oy / Oy Brandt Ab
Address: Sorvitie 4
Postal code: 63700 **Place:** Ähtäri
Country: (code): FIN **(written in):** Finland

NOTIFIED BODY

Name: Eurofins Expert Services **Identification number:** no 0809
Address: Kivimiehentie 4
Postal code: 02150 **Place:** Espoo
Country (code): FIN **(written in):** Finland
EC type-examination certificate: EUFI 29-20006087-C

PLEASURE BOAT DATA

Mark of a pleasure boat:	Silver
Model or number:	Puma Bowrider
Design category:	C
Type of boat*:	03
Frame type*:	01
Cover*:	03
Building material*:	02
Propulsion*:	02
Engine type*:	01
Maximum permissible engine power (kW):	86
Trunk length and width (m):	5,77 / 2,13
Depth (m):	Approx. 0,35

* The purpose of the codes later on this page

I declare that the above named recreational craft meets all applicable essential safety requirements as specified on the following page.

Vantaa 1.1.2021

Peter Krusberg
Product Development Manager, Silver boats, Z – series

Type of boat:	Deck:
01 purjevene	01 covered
02 inflatable	02 partially covered
03 other: motorboat	03 open:
Type of frame:	Propulsion:
01 single frame	01 sail
02 monirump	02 petrol engine
03 mio:	03 diesel engine
	04 electric motor
	05 oarrot
	06 more:
Building material:	Engine type:
01 aluminium, aluminium alloys	01 outboard motor
02 plastics, reinforced plastics	02 inboard motor
03 steel, steel alloys	03 z- or stern-drawing equipment
04 tree	04 other:
05 more:	

The standards and requirements to which the boat is built:

	General requirements	
	Basic information	EN ISO 8666:2018
A2.1	Watercraft marking system	ISO 10087:2019
A2.2	Manufacturer's plate	EN ISO 14945:2004
A2.5	Owner's Handbook	EN ISO 10240:2019
	Organisation and equipment	
A2.3	Preventing falls overboard	EN ISO 15085:2003/A1:2018
A3.7	Storage of life rafts	
A3.8	Exit	
A3.9	Anchoring, mooring and towing	EN ISO 15084:2018
A5.7	Marine lights, signal lanterns and audible warning devices	EN ISO 16180:2018
A5.8	Combating emissions	
	Installations	
A5.1	Engines and engine compartments	
A5.2	Fuel system	EN ISO 10088:2017, EN ISO 11105:2020
A5.3	Electrical system	EN ISO 10133:2017, EN ISO 13297:2018
A5.4	Guidance system	EN ISO 10592:2017
A5.5	Gas system	
A5.6	Fire prevention	EN ISO 9094:2017
	Dimensioning	
A3.1	Structure	EN ISO 12215-5:2019, EN ISO 12215-6:2018
	Hydrostatics	
A3.2	Stability and reserve lane	EN ISO 12217-3:2017
A3.3	Carrying capacity and buoyancy	EN ISO 12217-3:2017
A3.6	Manufacturer's recommendation for the maximum load	EN ISO 14946:2021
A3.4	Openings in the body, deck and superstructure	EN ISO 9093:2021
A3.5	Filling with water	EN ISO 15083:2018, EN ISO 11812:2018
	Steering features	
A4	Steering features	EN ISO 11592-1:2019
A2.4	Visibility from the main steering position	EN ISO 11591:2019

2 Definitions

The warnings and cautions in this manual are defined as follows:

- | | |
|-----------------|--|
| DANGER! | Denotes an extreme hazard that will result in a high probability of death or permanent injury if proper precautions are not taken. |
| WARNING! | Denotes a hazard that can result in injury or death if proper precautions are not taken. |
| NOTE! | Denotes a reminder of safe practices or directs attention to unsafe practices which could result in personal injury or damage to the craft or components or the environment. |

SI system units are used in this manual. In some cases, other units have been added in brackets. An exception is wind speed, for which the Beaufort scale is used in the Recreational Craft Directive.

3 Warranty

The boat and its factory-installed equipment have a two-year warranty, starting on the first day of use. Please contact your dealer regarding any potential warranty issues. Please remember to provide the WIN code. If possible, please provide a digital photograph of the subject of your claim. This usually speeds up the claims process.

4 Before use

4.1 Registration

Registration regulations vary between different countries. Find out what is required in relation to your own boat.

4.2 Insurance

Boat insurance can compensate damage occurring on water or during transport and lifting. Check who has insurance liability each time when having the boat lifted. Insurance also has an indirect effect on safety at sea: In the event of a serious accident or damage, you must, above all, concentrate on saving people. Insurance companies will be able to give more information about different insurance alternatives. Check who has insurance liability each time when having the boat lifted or transported!

5 Characteristics and use of your boat

5.1 General

This user manual is not intended to be a complete service or repair manual; it simply guides the user on how to use the boat in the proper manner.

5.2 Basic information

Recreational crafts can be constructed according to 4 categories (A, B, C and D) under the Recreational Craft Directive 2013/53/EC. This boat has been constructed according to design category C. The meanings of the various design categories are explained below.

Category A: The boat is built for conditions where wind speed can exceed 8 Beaufort (approx. 21 m/s), and where the significant height of the waves (please refer to note below) can exceed 4 metres. In such circumstances the boats are largely self-sufficient. Category A does not include abnormal conditions such as hurricanes. Such conditions may be encountered on extended voyages, for example when crossing oceans, or in coastal areas where there is an open expanse of sea for several hundred nautical miles off the coast.

Category B: The boat is built for conditions where wind speeds can reach a maximum of 8 Beaufort (approx. 21 m/s), and where the corresponding significant height of the waves (please refer to note below) is 4 metres at most. Such conditions may be encountered on offshore voyages of sufficient length, or on coastal waters when unsheltered from the wind and waves for several dozens of nautical miles. These conditions may also be experienced on inland seas of sufficient size for the wave height to be generated.

Category C: The boat is built for conditions where wind speeds can reach a maximum of 6 Beaufort (approx. 14 m/s), and where the corresponding significant height of the waves (please refer to note below) is 2 metres at most. Such conditions may be encountered on exposed inland waters, in estuaries, and in coastal waters in moderate weather conditions.

Category D: The boat is built for conditions where wind speeds can reach a maximum of 4 Beaufort (approx. 8 m/s), and for corresponding seas (significant wave height does not exceed 0.3 metres, and the height of the greatest waves does not exceed 0.5 metres). Such conditions may be encountered on protected inland waters, and in coastal areas during fine weather conditions.

Note: Significant wave height is a term used in boat design. In practice, significant wave height means the average height of the highest third of all wave heights measured in the waters. If the significant wave height is 2.0 m, the mean height of all waves is roughly 1.2 m.

Maximum recommended load: See *technical specifications*

See also section 5.4 “Loading”.

Main dimensions and capacities: See *technical specifications*

Craft length, width, draught, total weight, etc., and tank capacities are shown in the technical specifications.

Builder’s plate:

Part of the aforementioned information is given on the builder’s plate, which is affixed next to the remote control. Supplementary information is provided in the appropriate sections of this manual.

Technical specification

Model	SILVER Puma BOWRIDER
Design category	C
Overall length (excluding water-skiing or swimming ladders)	5,77 m
Width	2,13 m
Weight without engine, fluids and equipment	Approximately 680 kg
Weight in trailer transport with the largest machine	Approximately 1 089 kg Includes boat (approx. 680 kg) and outboard engine (259 kg), plus an estimate of the weight of liquids and equipment (150 kg). NOTE! This is not the maximum weight of liquids and equipment.
Weight in trailer transport with the largest machine in accordance with the standard	Approximately 1 089 kg Includes the boat (approx. 680 kg) and 115 hp engine (259 kg) and an estimate of the weight of liquids and equipment (150 kg). NOTE! This is not the maximum weight of liquids and equipment.
Maximum load/ number of persons	595 kg 6 people
The maximum load includes	450 kg / 6 people (à 75 kg) + personal equipment 30 kg + equipment 25kg + fuel 90 kg
Maximum load on the CE plate	505 kg Incl. persons 6 x 75 kg = 450 kg + personal equipment 30 kg + equipment 25kg = total 505 kg
Mass of the boat under full load	Approximately 1579 kg Includes boat 680 kg + engine 259 kg + battery 20 kg + basic equipment 50 kg + personal equipment 30 kg + fuel 90 kg + people 450 kg
Maximum engine power	86 kW / 115 hp
Fuel tank capacity	120 litres
Maximum draught with full load, engine up	Approximately 0,35 m
Maximum height above water level with light load	1,3 m
Building material	High-strength plastic
Colour code (body and cover)	RAL 9016
Hydraulic hoses	5 m
Top speed achieved in the boat test	About 40 knots

5.3 Maximum recommend number of passengers

The boat's maximum recommended number of passengers is 6 persons.

WARNING!

Do not exceed the maximum recommended number of passengers. Regardless of the number of passengers, the total weight of people and equipment must never exceed the maximum recommended load (please refer to Section 5.4, "Loading"). Always remain seated on the boat. All persons on board must remain seated while the boat is moving.

5.4 Loading

The maximum load of the boat is 595 kg. This includes the following weights:

- a) Total weight of persons on board 450 kg (one adult 75 kg, child 37.5 kg)
- b) Weight of liquids in fixed tanks 90 kg (fuel)
- c) Weight of personal equipment (e.g. hobby equipment and overnight gear) 30 kg
- d) Boating equipment 25kg

NOTE!

The maximum permitted load only includes the weights mentioned above.

WARNING!

Never exceed the maximum recommended load when loading the craft. Always load the craft carefully and distribute loads appropriately so that the boat is on an even keel. Heavy equipment should usually be placed in the storage compartment under the aft seat. If the boat is carrying the maximum number of passengers, heavy items should be placed in the bow so that the boat will not be tail-heavy. Always avoid placing heavy items high up.

5.5 Engine and propeller

The maximum engine power for the boat is 115 hp (86 kW). Do not use the boat with an engine that has an output higher than the kW limit given on the CE plate (115 hp) . Using a more powerful engine than specified on the CE plate will void the boat's warranty. Follow the dealer's instructions when choosing the propeller for your boat.

5.6 Prevention of water incursion and stability

5.6.1 Hull and deck through fittings and closing valves

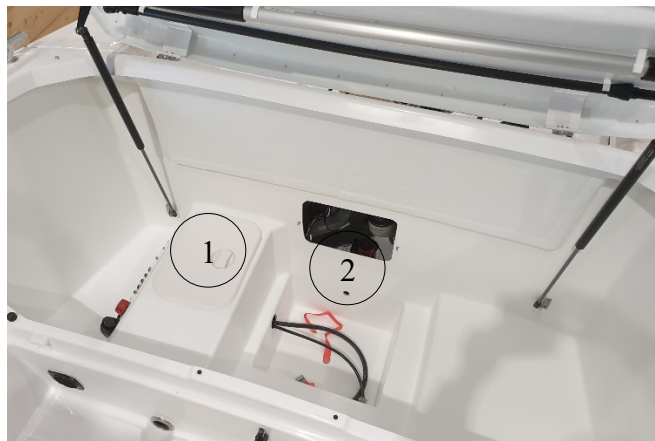
The boat has a rainwater drainage system, which means that rainwater in the open space of the boat is drained when the boat is on the water. The system also functions when the boat is out of water, provided that the bow is higher than the stern and closing valve is open. The rainwater drainage valve is located underneath the aft sofa (see picture on next page). This drain valve is meant to be shut only when at heavy load to prevent potential water incursion. **In other loading conditions the drainage valve should remain open to let rainwater drain from the boat.**

The boat is fitted with an electric bilge pump, located in the tank compartment of the boat, between the fuel tank and the transom. The pump automatically drains the bilge of the boat. It has a capacity of approximately 40 l/min. The manual switch for the bilge pump is located in the panel to the right of the steering wheel. The switch has a light that comes on when there is water in the bilge of the boat. When the light comes on, you should immediately check the level of water in the midsole by opening the hatch in the rear wall of the rear seat storage compartment. A small amount of water, such as condensation water, will be quickly drained by the pump, but if the light comes on again after a while, you should go ashore and lift the boat up and find out what is causing the leak.

To access the pump, open the hatch in the rear wall of the storage compartment under the rear seat.



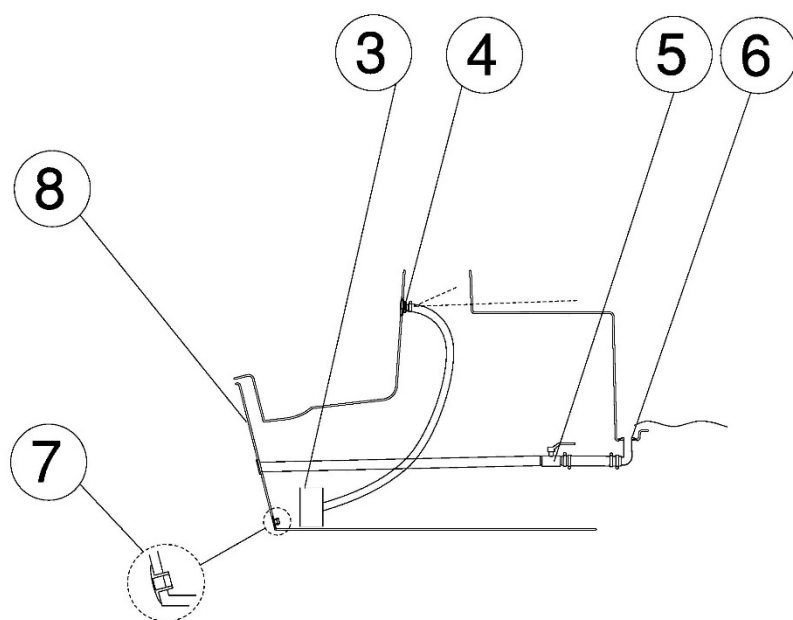
- (1) The tap is open when the handle is parallel to the drain hose.
- The faucet is closed when the faucet is at a 90-degree angle to the drain hose.
- The tap has a small metal safety ring to prevent movement, which must be pulled up before the handle can be moved to another position.



The boat has an electric bilge pump in the bilge (location shown in the picture below). The function of the bilge pump is automatic meaning that it will automatically empty the bilge if

there will appear water. The capacity of the electric bilge pump is about *40 l/min*. On the right hand of the steering wheel, you find the manual switch to turn on the electric bilge for testing/checking the function. In the switch there is a light that will turn on if there is water in the bilge. If the light turns on you should immediately check the bilge by open the inspection hatch in the plywood bottom plate underneath the middle hatch in the aft sofa. If the bilge is empty, you can continue boating but if the light turns on again and pump starts to empty the bilge you have to immediately drive to the shore and nearest harbour or landing-stage and thereafter lift up the boat from water to find out the reason to the leakage.

The electric bilge pump can be checked by removing the plywood plate underneath the middle hatch of the aft sofa. The pump can be lifted up by gripping the hose as it is only submerged in a kind of pocket.



Rainwater drainage system and bilge pump system

- | | |
|----------------------------------|--|
| 3. Electric bilge pump | 6. Rainwater drainage through fitting |
| 4. Bilge pump hose | 7. Drain plug for bilge |
| 5. Rainwater drainage pipe valve | 8. Shut-off flap, aft end of drainage pipe |

The owner of the boat is responsible for ensuring that there is at least one baler or bucket in the boat.

WARNING!

The bilge pump system is not intended to cope with a leak caused by running aground or other equivalent damage (hull damage).

SAFETY MEASURE!

Regularly check to ensure that there is no debris around suction grid of the bilge pump.

- WARNING!** Always keep the drainage pipe valve shut when the pipe's inboard end is constantly under water due to heavy loading. The shut-off flap on the transom only prevents water from entering the boat when reversing!
- NOTE!** Make sure that water can flow unobstructed through the drainage pipe. Debris such as autumn leaves may obstruct the water flow, which can cause the boat to fill with water and sink. The bilge pump system does not work in conditions below 0°C.
- NOTE!** There is always some condensed water in the bilge. The hull bushings may also allow water to seep through, particularly as the boat ages. Always remember to check the bilge before you leave the boat at quay or buoy, and always before setting off. Have any leaks repaired at an authorised repair shop.
- WARNING!** The boat's handling properties may become extremely dangerous if there is water in the bilge.

5.6.2 Stability and buoyancy

Please note that stability will be reduced by any weight added high up on the boat. Any change in the distribution of weight on board may significantly affect the stability, trim and performance of your boat. Please remember that large breaking waves always present a serious danger to stability.

5.7 Preventing fires and explosion hazards

5.7.1 Refuelling

Shut off the engine and extinguish any cigarettes before starting to refuel. During refuelling, do not use switches or appliances that can cause a spark.

When refuelling at a service station, do not use a plastic funnel, since it will prevent the tension between the refuelling nozzle and filling vent from being discharged.

Do not stow any loose items under the aft sofa that could prevent fuel flow to the engine if they shift. Check the fuel hoses annually for wear, especially at through fittings.

Please note that, depending on the trim of the boat or the boat's heeling angle, it might not be possible to use the full capacity of the fuel tank.

If the boat is on trailer behind a car when refuelling, please note that the fuel tank ventilation does not work efficiently if the bow of the boat is downwards.

If the refuelling gun is knocked off when you are refuelling, you must turn the gun at least twenty degrees to prevent the spray from hitting the safety tether inside deck fill. Note also that the tank ventilation outlet is inside the deck fill. Do not fill gasoline in the ventilation opening.

WARNING! Vaporised fuel is highly explosive. Observe these instructions and the utmost caution during refuelling. The smell of fuel always means that there is vaporised fuel on your boat.

5.7.2 Fire protection

The boat is equipped with a portable 2 kg fire extinguisher class 8A 68 B, which is the minimum power requirement for extinguishers. For the extinguisher to remain reliable, it should be inspected annually by an authorised inspector. In the event that the fire extinguisher is replaced, the capacity of the new one must be at least equivalent to the old.

The fire extinguisher is located in the "glove box" storage compartment in front of the co-driver, and there is a red extinguisher sign on the outside of the compartment indicating that the extinguisher is inside the storage compartment.

Ensure that firefighting equipment is readily accessible even when the boat is loaded. Inform members of the crew about the location and operation of fire-fighting equipment. The fire extinguisher is located in the storage compartment of the aft sofa on port side (left-hand side) in the open deck space. There is a red extinguisher sign outside sofa showing the location of the extinguisher.

Remember:

- Never hinder access to safety equipment, for instance the switches to the electric system.
- Never hinder access to fire extinguishers located in a box.
- Never leave the boat unsupervised while the cooker or heater is on.
- Never make alterations to any of the boat's systems (especially the electricity or the fuel systems) or allow an unqualified person to make alterations to any of the boat's systems.
- Never refill a fuel tank when the boat's engine is running, or the cooker or heater is on.
- Never smoke while handling fuel or gas.

5.8 Main power switches and circuit breakers

Operation of the main power switch(es):

- Circuit switched ON when green colour
- Battery disconnected/OFF when red colour

Switch off the main switch (1) when leaving the boat.



(2) Circuit fuses are located next to the main switch. Fuse sizes are shown in the wiring diagram. Do not change the amperage ratings of the fuses or install components in the electrical system that exceed the rated amperage of the circuit

Electric circuit fuses are located to the left of main power switch. Fuse sizes are presented in the electrical diagram. Do not change the circuit breaker amperages or install any components that exceed the nominal amperage of the circuit in the electric system.

(3) 12V outlet for portable 12v refrigerator.

(4) USB plug for My Silver 4G modem.

Remember also to switch off the main power switch before making any electrical installations.

All fuses are automatic circuit breakers. In the event of a fault current, the circuit breaker will trip. You can reset the circuit breaker by pushing it back in. If the circuit breaker immediately trips again, there is a short-circuit somewhere in the electrical system or in a component. You must leave repairing the boat's electrical system to a professional electrician.

NOTE! Remember also to switch off the main power switch before making any electrical installations.

NOTE! Never switch off the main switch while the engine is running! It can cause serious damage to the engine's electric system.

NOTE! Do not perform electric installations (such as changing lamps) when the power is on. Leave any larger installations to professionals.

NOTE! When connecting or disconnecting the battery, do not touch both terminals simultaneously with metal objects.

5.9 Operation

If this is your first boat or a boat type new to you, take someone with experience of a similar boat with you the first few times you operate it.

5.9.1 Controls

You will quickly learn how to control your boat, but changing weather conditions, such as wind and waves, will always present new challenges for the driver. The remote control combines the functions of throttle, forward and reverse gears, and the adjusting of the engine trim angle. The boat is equipped with hydraulic steering.

5.9.2 Emergency switch

The emergency switch is a device that you have to attached to the remote control or to the ignition key panel (depending on what outboard motor brand). The other end you should attach around your knee. The emergency switch automatically switches off the engine when detached from the remote control. It is very important that the boat will come to a halt if the driver, for whatever reason, loses his/her balance and is flung from the helm.

NOTE! Never take control of the boat without having attached the emergency switch to yourself. If you attach the emergency switch to your arm, do not steer the boat with that arm, because the chain may be tangled in the steering wheel during tight turns.

NOTE! The engine will not start if the emergency switch is not attached to the switch on the remote control.

DANGER! A rotating propeller presents a life-threatening danger to a swimmer or a person who has fallen overboard. Always use the emergency switch to turn off the engine when a swimmer or water skier is about to re-enter the boat from the water.

5.9.3 Gearshift and throttle

The engine is put into gear by pushing the button on the gear/throttle handle upwards with your fingers and by pushing or pulling the gear/throttle lever forward or backward, depending on the direction in which you are planning to go. When the engine is in gear, you can adjust the boat's speed using the same gear/throttle lever.

When the boat is travelling forward slowly, you can use the reverse gear for braking when approaching the dock, for instance. Shifting into reverse must not be done if the boat is travelling at higher speeds, because it will damage the engine.

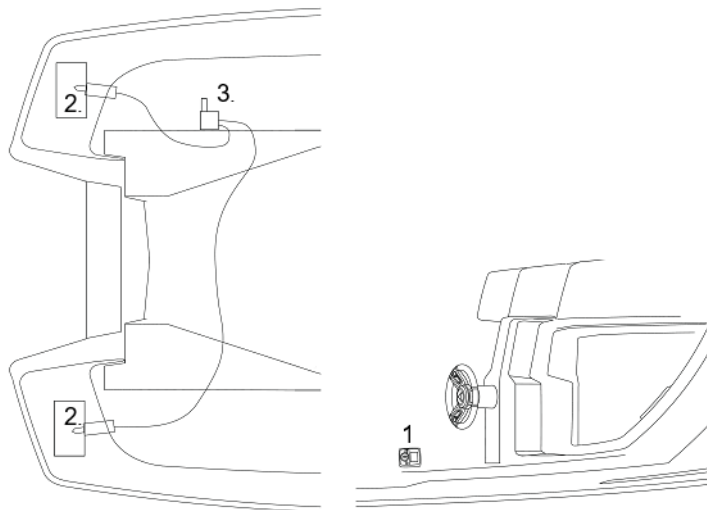
5.9.4 Adjusting the trim angle

These are the main rules when adjusting the trim angle:

- When bringing the boat to plane, keep the 'bow down' position.
- When the boat is planing and seas are calm, keep lifting the bow until you can feel that both the engine and the boat move very easily. In calm waters, the engine should normally be trimmed up at least 3 scale marks on the trim indicator on the revolution counter. If the engine is trimmed up too much, the speed of the boat will be reduced. If the boat is trimmed too low, the boat will run slowly, and the engine will run heavily. To achieve good fuel economy, it is important to drive the boat with the right engine trim angle.
- In heavy head seas, lower the bow to allow it to slice through the waves better, thus providing a smoother ride.
- In following seas, raise the bow to avoid 'diving' into the waves.

WARNING!

Do not drive the boat at high speeds in heavy waves with the engine trimmed up (bow up), as there is a risk of sudden heeling when the propeller hits the water again after a flight. Likewise, do not drive at high speed with the engine completely trimmed down (bow down) since this can cause the boat to pitch unexpectedly when the bow hits the water. The boat may become unstable when turning if the bow is too low.



5.9.5 Trim flap system (additional equipment)

1. Control panel at helms man position
2. Distribution unit
3. Trim flaps

WARNING! If you use the trims manually, adjust the trim controllers carefully at high speeds. They will change the behaviour of the boat radically.

WARNING! Waves reduce manoeuvrability and make the boat heel. Accordingly, reduce speed when encountering heavier seas.

5.9.6 Starting the engine

1. Switch the power on using the main power switch.
2. Lower the engine to the driving position by pressing the Power Trim button on the gear/throttle handle.
3. Check that the gear/throttle handle is in the neutral position and that the emergency switch is attached to the bottom of the remote control.
4. Switch on the current, using the start key, without starting the engine and wait a few seconds for the warning lights to light up.
5. Start the engine by turning the ignition key clockwise until the engine starts. If everything is in order, the engine should start within 1-2 seconds. If the engine does not start, you should not try to start it for more than 10 seconds at a time.
6. After the engine has started, let it idle for a few minutes before setting off. (Please refer to the engine manual!)

For more detailed information, please refer to the engine manual.

5.9.7 Driving

It is easy to drive when the weather is fine, and the sea is calm. However, always remember to keep an adequate lookout. In order to maintain the best possible visibility from the driver's position, you should do this:

- Ensure that passengers do not restrict your visibility.
- Do not drive near planing speed for long periods, as the bow comes up and reduces visibility.
- When visibility is poor, look over the windshield.
- Remember to also keep a lookout behind you, particularly on shipping lanes.

Use navigation lights in darkness.

Always adjust your speed to prevailing conditions and the environment. Take into account the following:

- waves (also consult the passengers on what is a comfortable speed);
- your own bow wake (greatest at planing speed, smallest at speeds under 5 knots);
- visibility (islands, fog, rain, driving against the sun);
- familiarity with the route (time required for navigation);
- width of the route (other traffic, noise and bow wake near shore).

- Make sure to always maintain a sufficient distance to avoid collision. The distance must be sufficient to stop the boat or to take evasive action.

When running at low speed, a planing boat's directional stability is poorer than at higher speeds. So be careful in narrow passages and, particularly, when meeting other boats.

You must learn the rules of traffic on sea lanes and follow the international regulations on how to avoid collisions at sea, COLREG. Navigate with care and use new or updated nautical charts.

The running position of the boat greatly affects its handling characteristics and fuel consumption as well as visibility from the driver's position. You can affect the running position by:

- placing the load properly – the general rule being that you should place as little weight in the bow as possible; and
- adjusting the trim angle.

The combination of the right running position with the right speed also makes driving in rough seas safer and more comfortable.

WARNING!

A high speed and sudden manoeuvring in rough seas can lead to loss of control over the boat and large heeling angles.

NOTE!

The boat is not designed to jump waves. The warranty does not cover damage caused by flight. It is possible to check whether the engine has been airborne from the engine history on the repair shop's computer.

5.9.8 Approaching and leaving the dock

Practise boat manoeuvring skills where there is ample space to learn how to approach a dock before entering a crowded marina.

A very gentle application of throttle does not generate sufficient steering power. Sharp but short throttle applications enable efficient steering movements when approaching the dock.

Ensure that everyone on board who does not have to stand up is seated when you are approaching the dock. Sudden steering movements may cause the boat to heel and injure somebody.

Before docking, prepare the mooring lines at stern and bow. Approach the dock bow first at a slight angle. Just before touching the dock, steer into it and shift into reverse. Apply throttle quickly and sharply. The boat will stop and turn parallel to the dock. If possible, make the approach into the wind or current, whichever is the strongest. This makes departing easier, as the wind or current will push the bow out from the dock. The easiest

way to depart is to first push the stern as far away from the dock as possible, and then slowly reverse away from the dock into open water.

The propeller is designed to have the best grip in forward gear. Therefore, propeller performance is weaker in reverse. The steering response is also not as good in reverse as in forward gear.

WARNING!

The boat is fast. If you are planing, it takes time to come to a stop. Slowdown in time before anchoring, beaching or docking. Learn to estimate the distance the boat needs to stop. Remember that steering control is poor if there is no traction.

WARNING!

Do not try to stop the boat with your hands, and do not put your arm or foot between the boat and the dock, the shore or another vessel! Practise beaching and docking under favourable conditions! Use moderate but firm engine power!

NOTE!

When securing your boat, take into consideration the possibility of changes in wind direction, rising or sinking of the water level, bow wakes, etc. You can get more information from your insurance company, for example.

5.9.9 Using the canopy

The canopy is designed to withstand a maximum speed of 30 knots at sea, and 50 km/h in road transport. All press studs must be properly fastened when using the canopy. The canopy's design allows raising just the front part. We recommend that you remove the sides and back of the canopy to make it fit into the canopy box more easily. Then, fold the upper parts of the sides entirely on top of the roof, so that no fabric remains where the corners of the canopy supports are. Finally, roll up the roof part along with the sides folded on top of it, and lower the canopy into the canopy box.

NOTE!

The boat should not be driven in rain with the canopy down. The equipment in the open deck space is not water-tight and must be protected from the rain.

NOTE!

The windscreen and canopy do not necessarily form a watertight seal.
Water may enter the boat between the canopy and windshield when the canopy is up.

5.9.10 Windshield door

The windshield door must always be kept shut and locked when the boat is moving. The door has not been designed to be used as a railing when getting in or out of the boat.

WARNING! The door must be kept closed in rough seas or strong or gusty winds, since it may slam shut. The door is heavy and may cause injury if it strikes someone when slamming shut.

WARNING! Large waves or gusts of wind may slam the door shut also when the boat is stationary. It is thus recommended to always keep the door closed when the passage through the bow deck is not being used.

5.10 Proper use – other recommendations and guidelines

5.10.1 Man overboard

It is always a serious situation when someone falls overboard. Rescue procedures should be practised in advance during good weather, because it is too late for practice when someone has actually fallen into the water.

It is always easiest to help a person climb back on board at the stern of the boat. A rope loop attached to the boat helps lifting. The boat's swim ladder extends 30 cm into the water. If a child has fallen overboard, an adult carrying an extra life-saving device or a fender must always jump in after the child; however, someone must always remain on board the boat.

It is very important to maintain visual and verbal contact with a person that has fallen overboard.

DANGER! A rotating propeller presents a life-threatening danger to a swimmer or a person who has fallen overboard. Always use the emergency switch to turn off the engine when a swimmer or water skier is about to re-enter the boat from the water.

Potential life-raft, the recommended location is under the back seat.

5.10.2 Securing loose equipment

Stow all heavy equipment, such as anchors, and secure them firmly before setting off.

5.10.3 Respect for the environment

Conservation of the environment is a matter of honour for every boater. Therefore, you should avoid:

- fuel and oil leaks;
- emptying rubbish and waste into the water or on the shore;
- letting detergents or solvents get into the water;

- loud noise both on the water and at the marina; and
- producing an unnecessarily high bow wake, especially in narrow passages and shallow waters.

Service the engine well and run it at the most economical speed, which will also keep exhaust emissions low.

Please also consider other local environmental legislation and regulations. In Finland, under 'everyman's right' anyone may move around on private land, except in the vicinity of residential buildings, as long as they cause no damage or inconvenience. 'Everyman's right' also allows movement and temporary anchorages on privately owned waters, swimming and going on shore at uninhabited locations, unless landing is specifically prohibited by a notice from the authorities. It is not allowed to anchor next to a shoreline where there are one or more residences. Docking at a private dock owned by someone else or landing on a shore where there are residences is also not allowed without permission.

Please make sure to familiarise yourself with the International Convention for the Prevention of Pollution From Ships (MARPOL) and respect it to the greatest possible extent.

It is allowed to camp out on islands as long as no damage is caused to the landowner. It is not allowed to camp out next to residential buildings or in or near cultivated fields. You may not light a campfire unless you have the landowner's permission. Everyman's right allows the picking of naturally growing berries and mushrooms without damaging trees or the environment in general. Please check the regulations concerning movement in the natural environment in your area.

5.10.4 Anchoring and mooring the boat

Always moor your boat carefully, even in sheltered places, because conditions can change rapidly. Mooring lines should be equipped with absorbers to dampen any jolts. Please refer to the section Towing for the location of bollards. To prevent abrasion, use fenders that are large enough.

The forward endurance of the bow bollards is at least 23 kN, or c. 2,300 kg. The backward endurance of the stern bollards is at least 16.0 kN, or c. 1,600 kg.

The minimum anchor weight for the boat is 5 kg. Drop anchor far enough from shore. A reasonable grip is attained if the anchor line length is 4–5 times the water depth.

WARNING!

Do not try to stop the boat with your hands, and do not put your arm or foot between the boat and the dock, the shore or another vessel!

NOTE!

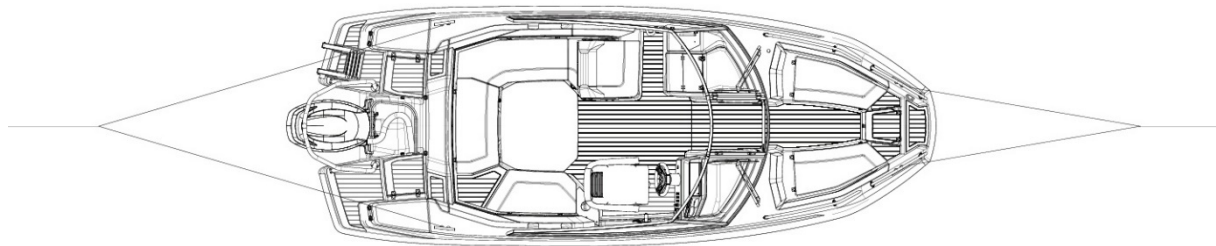
When securing your boat, take into consideration the possibility of changes in wind direction, rising or sinking of the water level, bow wakes, etc. You can get more information from your insurance company, for example.

5.10.5 Towing

When towing another boat, use a floating line that is strong enough for the task. Begin towing slowly, avoid jerks, and do not overload the engine.

The owner of the boat should consider the measures necessary for securing the boat's towrope.

If you are towing, or if your boat has to be towed, attach the towline to the bow or stern bollards as per the following image

**WARNING!**

When towing, the towline is under high tension. If it should break, the end that snaps off may lash back fast enough to cause serious injury or death. Always use a thick enough line and keep to one side of the towline.

NOTE!

When towing another boat or being towed, always drive at low speed. If the boat has a displacement hull, never exceed hull speed while towing.

NOTE!

The towline should always be fastened so that it can be unfastened under load.

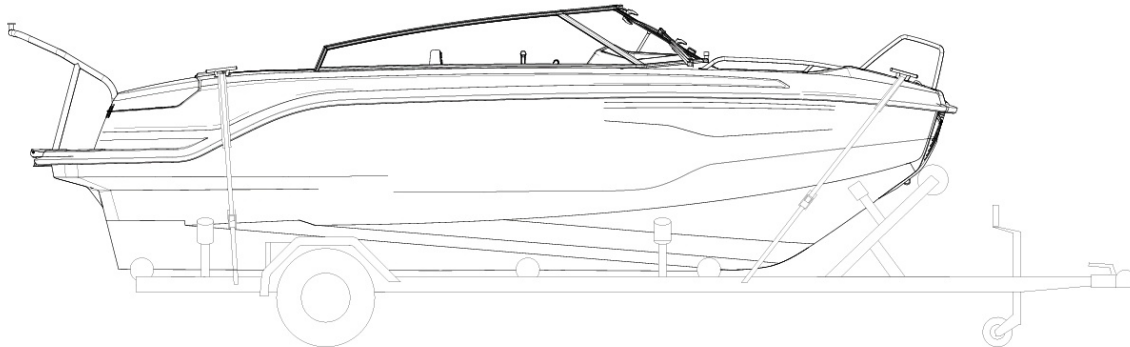
5.10.6 Trailer transport

Weight data for trailer transport may be found in the technical specifications. The trailer's keel supports should bear most of the weight of the boat. Adjust the side supports so that the boat will not rock sideways. For more information, please turn to your dealer.

Clean the supports of sand and dirt so that they will not scratch the bottom of the boat. Double-check that the trailer is securely coupled to the trailer tow hitch!

The place for lifting the boat out of the water should be sheltered, and the ramp should extend deep enough into the water. Reverse the trailer so deep into the water that the rearmost keel support is just above the water. Drive the boat carefully towards the rearmost keel support. Fasten the hoist cable to the towing eye and

reel the boat up onto the trailer, making sure that the boat remains straight on the trailer's centre line. Remember to trim up the engine before reeling the boat onto the trailer so that it will not hit the bottom.



Picture: Securing the boat to the trailer

Tie the boat properly before beginning transport. The sling ropes at the bow should be directed down and back, and the sling ropes at stern should be directed down and front. Do not leave any loose equipment or extra load on the boat when it is being transported. Remove the seat cushions and close all hatches properly.

The engine should be in the driving position during transport. However, ensure that there remains adequate clearance. If the clearance is not sufficient in this position, you can transport the engine raised. In this case, the engine must be supported with a suitable support to protect the transom.

If the boat is kept on the trailer between transports, you must loosen the sling ropes for the duration and tighten them before the next transport.

NOTE!

The trailer should be slightly front-weighted. Make sure that the boat is fastened tight enough to the trailer and that the weight of the boat is divided equally between side supports. If the boat swings against a side support during transport, it may sustain hull damage.

When letting the boat down from the trailer, remember to fasten the bow rope to the boat beforehand so that you can release the cable/rope from the trailer hook as soon as the boat is in the water. Be careful with the winch handle!

5.10.7 Docking

The storage cradle should be sufficiently steady and suitable for this particular boat and engine combination. A sturdy plank (2x4"), should be placed between the "V" trestles to

support the keel and to bear most of the weight of the boat. The boat must not rest on the side supports. The side supports should not be placed at the corners on the bottom, and point loads should be avoided. The supporting structures should be strong, particularly near the transom, to support the added weight of the engine.

Only use reputable lifting companies or boat yards with sufficient lifting capacity. In addition to the boat's tare weight (please refer to the technical specification), also take into consideration accessories and other possible loads in the boat.

When the boat is being lifted, the lines must be placed under the boat and the boat must remain horizontal during lifting.

NOTE! Do not lift the boat by its bollards.

DANGER! Never stand under a boat that is suspended from a crane.

6 Servicing and maintenance

Keep your boat and its equipment clean and tidy. This increases comfort and safety on board, and also the boat's resale value.

Familiarise yourself with the service procedures shown in the engine manual (see annex). Have your engine serviced according to the instructions in the manual.

6.1 Washing and waxing the boat

Normally it is sufficient to just wash and wax the deck and sides. Special boat cleaning agents are most suitable for the purpose. Use mild detergents. Do not use strong solvents (pH value must not exceed 11); they can cause glossy reinforced plastic surfaces to fade. Mildly abrasive polishes can be used to remove chafes and embedded dirt from the deck. Fibre glass surfaces can be washed with a pressure washer.

Useful tip: When the boat has been washed with tap water, a thin chalk-like layer of lime and minerals will remain on the boat's surface after it has dried. The problem can be eliminated by adding a few drops of pine oil soap into a bucket of rinsing water, which will soften it.

Useful tip: Water and lime stains on stainless steel rails can be removed using Lemon Pled furniture spray. Your railings will shine like the day they came off the assembly line.

Useful tip: If the boat's ropes smell bad after the season, immerse them for a couple of hours in a bucket of water with a bottle of apple vinegar and a splash of fabric conditioner added. Allow the lines to dry properly, and they will be as good as new.

6.2 Care instructions for seat cushions

Always use the canopy or harbour cover when it is raining to protect the open deck space and seat cushions. Although the seat cushions are made of water-resistant material, water can get in through their seams. If the cushions remain damp for any length of time, they may get mouldy and be ruined. If the mattresses get wet, the fabric can be removed by unzipping the mattress and dried in the sun, at room temperature or in a sauna (50°C). The warranty does not cover cushions spoilt by rain or damp.

NOTE! To keep the boat's seat cushions in good condition over the winter, they should be stored in a dry, well-ventilated space.

NOTE! Wet cushions should not be placed in storage, because they gather mould easily.

The press studs of the seat cushions should be sprayed with silicon spray every now and then, otherwise they may become so tight that the fabric will tear when trying to open them. The warranty does not cover ripped seat cushions. Use very little silicon spray at a time in order not to stain the cushions.

6.3 Care instructions for the canopy

Store the canopy over winter in a dry and well-ventilated place. The warranty does not cover torn or mouldy canopies.

6.4 Care instructions for the windshield

The boat's windscreen is made of tempered glass and can be cleaned with ordinary glass cleaners.

Useful tip: When wiping the boat's windshield dry after cleaning, avoid using circular motions. This can leave circular smudges on the windshield that become visible in sunlight, impeding visibility. Wipe off any streaks with dry newspaper or cotton cloth using first horizontal, then vertical motions. Repeat this a few times and you'll bring the windshield to a brilliant shine.

6.5 Care instructions for the stainless-steel components

To keep the boat's stainless-steel parts, such as rails, handles and bollards, shining as good as new, you should keep the parts clean and waxed. The edges of the mounting flanges of the rails should also be cleaned. Any dirt that remains under the edge of the flange will begin to look like rust. In regular use (i.e. no damage), the parts should be cleaned and waxed at

least twice every summer. Rail maintenance should also be performed when the boat is put into winter storage.

6.6 Care instructions for the steering system

The hydraulic steering does not require maintenance under normal circumstances. If the steering starts to feel loose, there is a leak somewhere in the system. Leaks must be repaired immediately!

WARNING!

A hydraulic steering system that has a leak or trapped air in the hoses is extremely dangerous.

6.7 Care instructions for electrical components

Electrical components like main switches, other switches and couplings do not normally need to be serviced if the boat is stored in a dry and well-ventilated place for the winter. If, however, you wish to protect electrical components against oxidation, the best way to do it is by spraying them every now and then with a moisture repellent antioxidant.

6.8 Minor superficial repairs

You can repair minor surface damage to the boat's hull or deck yourself. However, achieving a neat, unnoticeable repair requires a considerable amount of skill:

1. Protect the area around the damage with tape.
2. Bevel the edges of the damaged area and clean with acetone.
3. If the damage is deeper than 2 mm, it is advisable to smooth it with an appropriate polyfiller before painting.
4. Mix topcoat with 1.5-2 % hardener.
5. Fill the repair with more topcoat than needed, so that its surface remains slightly proud of the surrounding area.
6. Carefully put tape over the repair.
7. After the topcoat has hardened, remove the tape and sand the repair using 600 and 1200 paper applying water.
8. Buff using abrasive paste and wax.

The colours used on this boat are specified in the *technical specifications*. One point to consider is that a paint called *gelcoat* has been used in manufacturing the boat, but the surface is always repaired with a paint called *topcoat*. Gelcoat paint does not harden without a mould surface, whereas paraffin has been added to topcoat to allow it to harden.

NOTE!

Some post-delivery installations and alteration work may cause damage to the structure of the boat or impair safety if not performed correctly. Please contact the dealer if you are planning any modifications.

7 Winter storage

Preparing your boat for winter storage is an annual routine. Have your boat lifted in good time before the water freezes. Your boat is not designed for use in ice, and it is not meant to be used in temperatures below zero (for example, the rainwater drainage system will freeze up). It is advisable to perform all maintenance, repair, and inspection procedures in connection with placing the boat in winter storage.

Familiarise yourself with the service procedures shown in the engine manual. We recommend that you leave them to an authorised service agent. Do not forget to service the remote control and steering system. Make sure to perform their maintenance according to their separate instructions and manuals.

7.1 Measures before winter storage

Wash the bottom of the boat immediately after the boat has been lifted. Algae and slime will come off easier if they are not left to dry. Empty the engine of its cooling water according to the manual.

Give the engine and other equipment their winter servicing, following their separate manuals. If your boat is stored outside or in a humid place over the winter, empty it of textiles and other equipment that may corrode or become mouldy in damp conditions. Wash the ropes in fresh water. Replace any worn ropes. Leave through fitting valves open. Remove the drain plug for the winter.

Empty the septic tank and the freshwater tank of the boat. Pour two litres of a mixture that contains 50 % ethylene glycol and 50 % water into the toilet and press the flush button for about two seconds.

Check the condition of the hull and rub down any scrapes to let possible moisture inside the laminate dry. Repair any damage in the spring before launching the boat.

Remove all food from the boat and wipe all the surfaces on which food has been handled with a disinfectant. This will prevent the formation of mould.

Always cover your boat so that snow cannot gather inside. Always make sure, however, that it is adequately ventilated. A winter storage cover is available as an optional accessory for your boat.

7.2 Measures before launching the boat

Repair any damage to the gelcoat surface according to section 6.10.

In sea areas, antifouling paint should be used to prevent the hull from becoming covered with vegetation. Fouling of the bottom and especially the propeller increases fuel consumption significantly. However, if the boat is anchored at the inlet of a stream or in a

land-locked lake, or if it is lifted out of the water at least once every two weeks, it is normally not necessary to use antifouling paint. Carefully follow the paint manufacturer's instructions when applying the paint. When sanding old antifouling paint, remember that the dust is toxic.

Antifouling paint is not necessary in fresh water (lake areas). We nevertheless recommend using an epoxy primer if the boat will be in the water for several months each year. Fresh water, and warm fresh water in particular, is more readily absorbed by the laminate than sea water.

NOTE!

Do not paint over the zinc anodes or the piston rods of hydraulic trim tabs. Do not apply paints containing copper on aluminium parts. Remember to follow the paint manufacturer's instructions.

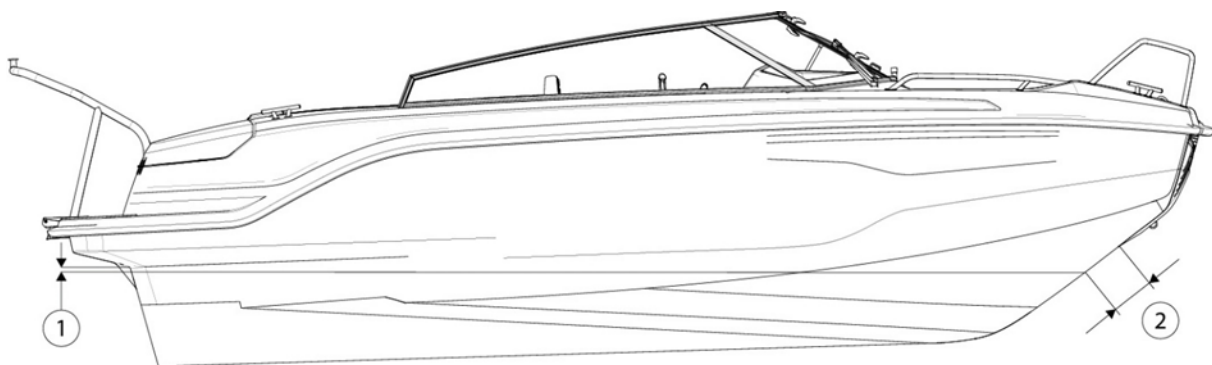
Useful tip: Do not throw away a used paint brush. A dried and hardened paint brush that has been used for antifouling paint can be reused if you first soak it for a couple of hours in a mix of 2 litres of hot water, 100 ml of vinegar, and 50 ml of baking powder.

Perform the necessary service procedures required for the engine according to the engine manual. Check the functioning of electric equipment and remove any oxidation from fuse connectors etc.

Remember that petrol goes stale over time, and you must always start the engine with fresh petrol in the spring.

When the boat has been launched you should open all valves in the through fittings (bushings) and check to ensure that there are no leaking hoses or connectors. The locations of through fittings are shown in section 5. Bring your safety equipment back on board before setting out.

7.2.1 Antifouling



Picture: Antifouling top line

Antifouling top line with Honda 100 hp / 166 kg engine

- (1) Aft corner: 190 mm from the bottom of the swim platform straight down
- (2) Bow: 280 mm downwards from the bottom of the bumper, along the bow rail

Antifouling top line with Honda 115 hp/217 kg engine

- (1) Aft corner: 150 mm from the bottom of the swim platform straight down
- (2) Bow: 300 mm downwards from the bottom of the bumper, along the bow rail

**NOTE!**

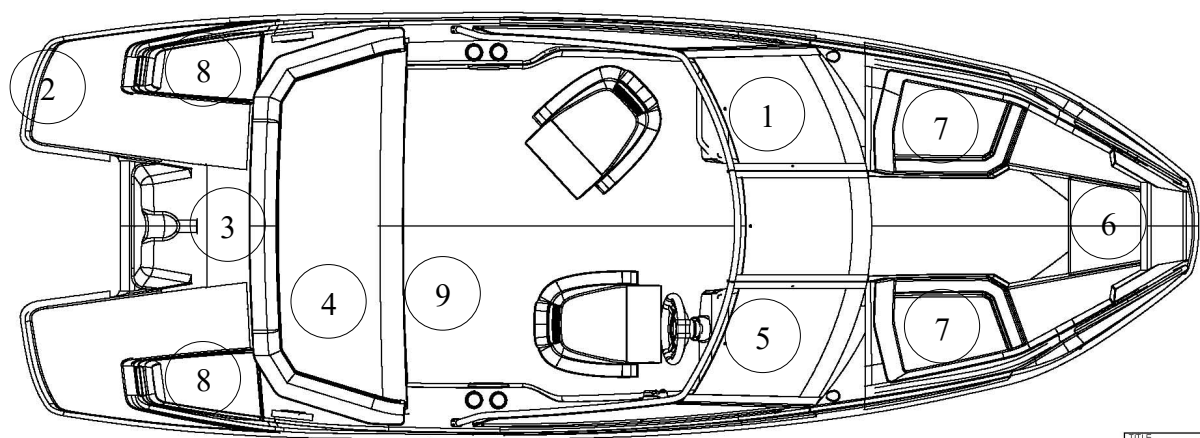
The dimensions are the antifouling paint line, not the actual waterline of the boat. (Waterline about 20 mm lower with Honda 100 hp.)

NOTE!

Do not paint the zinc anodes or the piston rods of the hydraulic cylinders of the engine plunger or trim levels. Follow the instructions of the paint manufacturer.

8 Layout

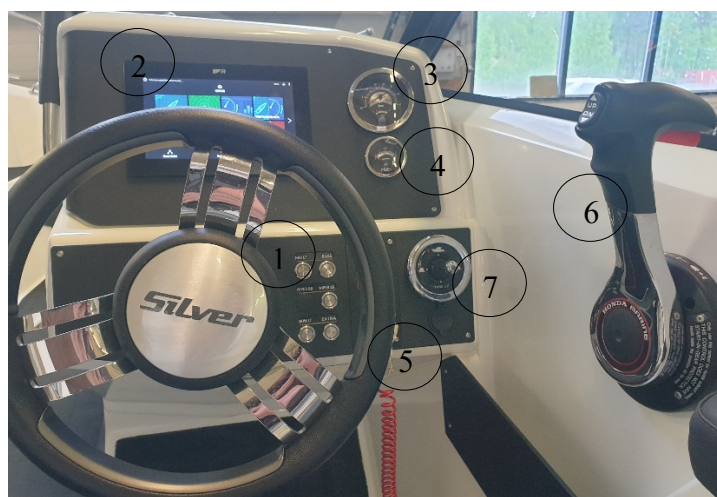
8.1 General lay-out



1. 2 kg fire extinguisher in the glove compartment in front of the co-driver
2. Swim ladder
3. Fuel deck fill and tank ventilation
4. Storage space under the aft seat:
 - Self-relieving shut-off valve (see section 5.6)
 - bilge pump
 - fuel filter
 - main power switch, 12 V outlet and fuses
 - canopy storage space
5. Steering position
6. Storage space for ropes
7. Storage spaces
8. Fender / rope storage
9. Self-draining outlet hole



(1.) 2 kg fire extinguisher



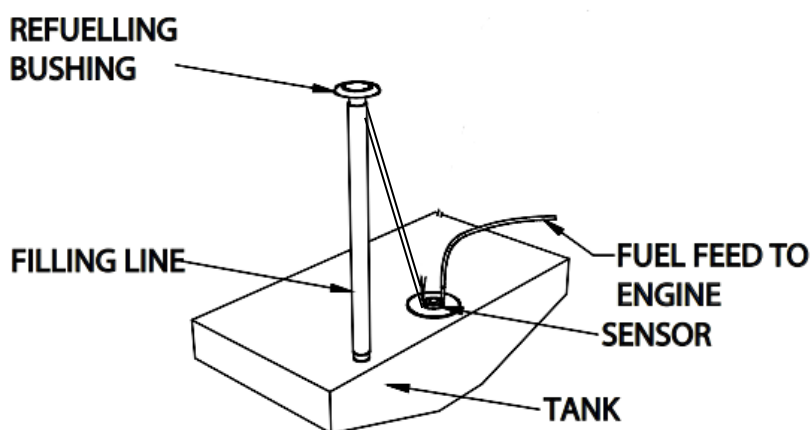
1. Circuit breakers:
 - Navigation lights
 - Bilge pump
 - Windscreen wiper left (optional)
 - Windscreen wiper right (optional)
 - Extra
2. Chart plotter
3. RPM and trim angle
4. Fuel gauge
5. Power lock and kill switch
6. Remote control (gear, throttle and trim switch)
7. Trim flap control (optional)

WARNING! Handle boat hatches with care. Be careful not to get your finger or toe caught in the hatch when closing it.

WARNING! It is not recommended that children use the rear storage compartment hatch cover alone due to its large size, weight and wind area. The tailgate lid should never be left in the open position without adult supervision. Wind or waves may affect the ability of the hatch to remain open, especially if the thrust of the gas springs has deteriorated over time. Replace the gas springs if necessary.

8.1 Fuel system

Tank diagram



The boat is equipped with a built-in fuel tank. A fuel filter is installed in the fuel line, also functioning as a water separator. The filter must be changed at least once a year. When a new or removed filter has been mounted, the fuel line must be filled with a ball pump before starting the engine.

NOTE! The condition of the fuel hoses must be inspected annually, and every effort should be made to prevent damage to them. Damaged fuel hoses must be replaced. If you replace fuel hoses, make sure the new hoses have an ISO 7840 label.

The refill cap is situated under the anchor box hatch on the starboard (right) side in the stern.

The cap of the fuel tank contains the text GAS, PETROL or FUEL, which refers to petrol 95E or 98E (recommendation).

8.2 Steering system

The boat is equipped with hydraulic steering. With hydraulic steering, the steering wheel's position changes constantly, which is why the boat is equipped with a symmetrical steering wheel.

The hydraulic steering does not require maintenance under normal circumstances. If the steering starts to feel loose, there is a leak somewhere in the system. Leaks must be repaired immediately!

NOTE! If you replace any component in the steering system, please note that all components must conform to the ISO 10592 standard and bear the CE mark.

WARNING! A hydraulic steering system that has a leak or trapped air in the hoses is extremely dangerous.

8.3 Electrical system

The electrical system includes the following main components:

1. Battery
2. Wire harness
3. Main power panel with main circuit breaker and fuses
4. Circuit breakers on dashboard
5. 2 x 12 V outlets
6. 1 USB outlet for My Silver 4G module on the main power panel
7. Navigation lights
8. 2 windscreen wipers (optional: right and left)
9. Trim flaps (optional)
10. Blue tooth speaker (optional)

In addition, the boat's electrical system also includes the engine, which acts as both a power source and a consumer.

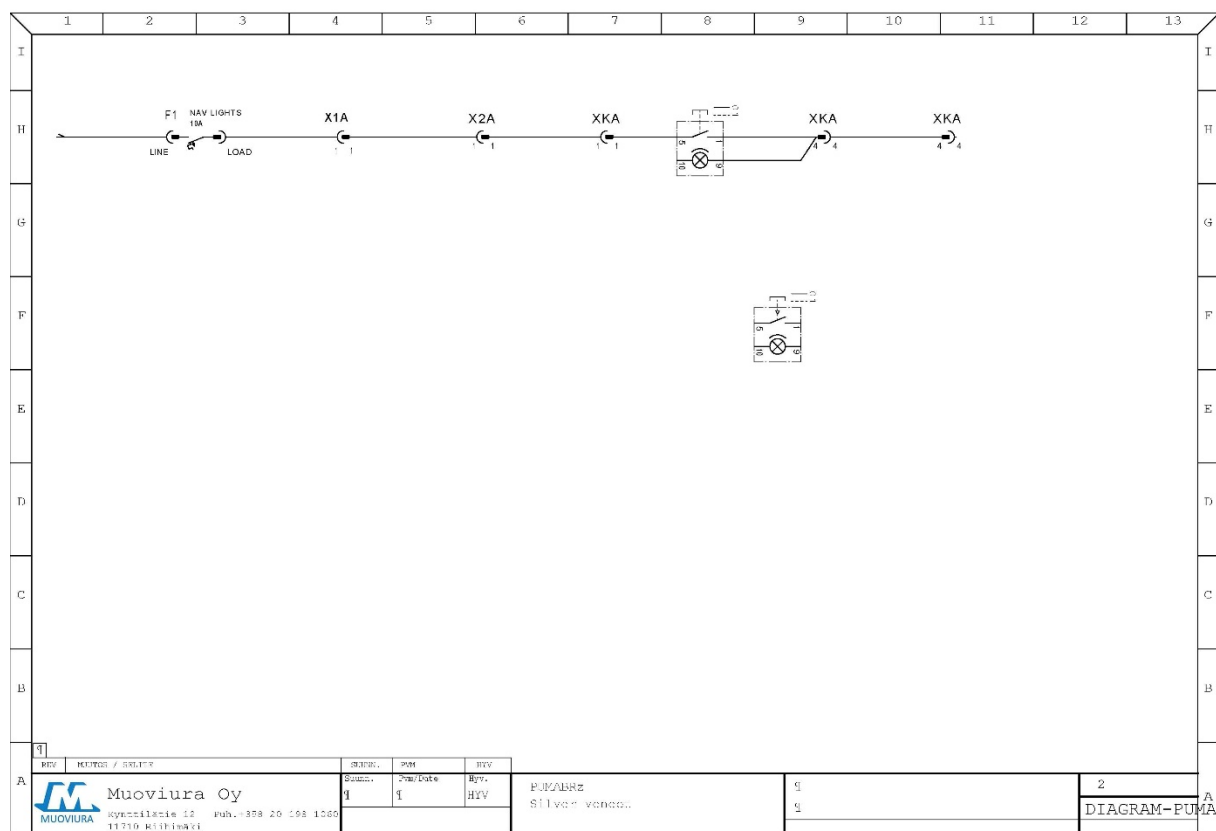
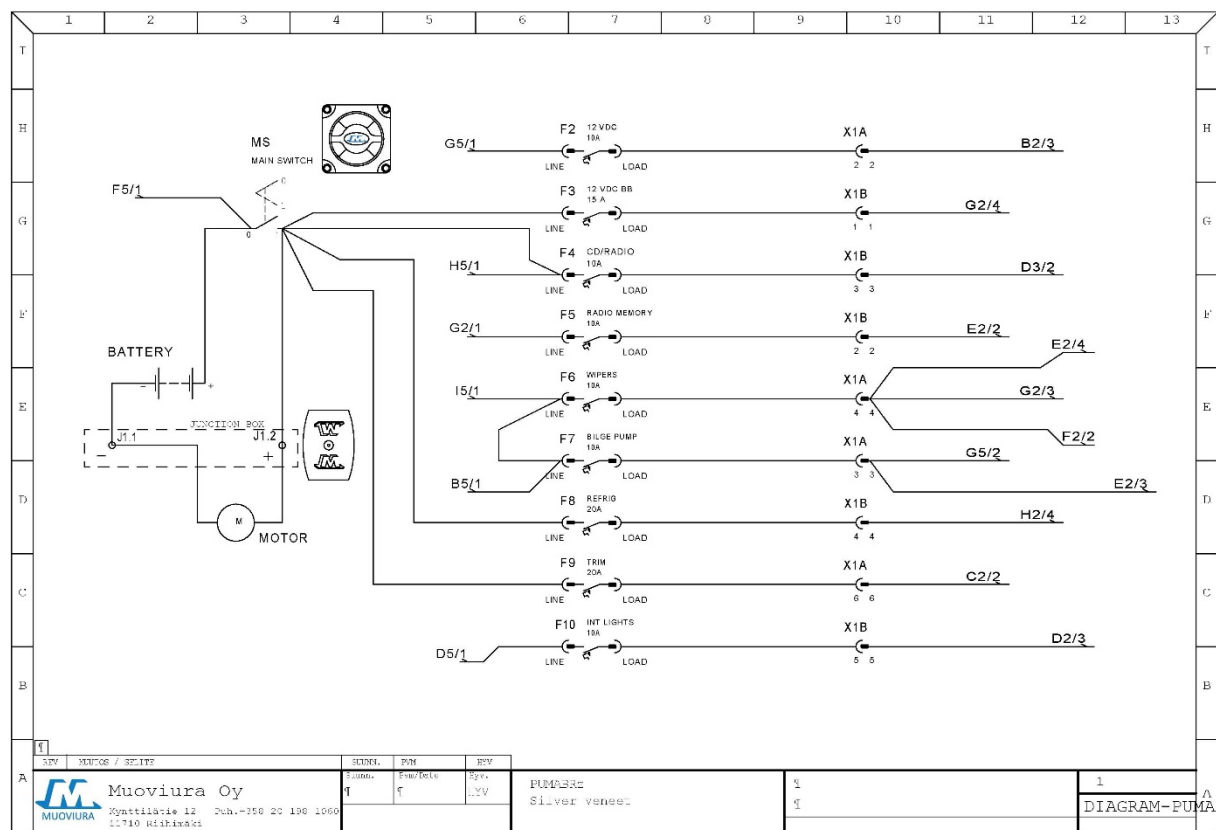
When removing or attaching the battery, be careful not to touch both terminals of the battery with a metal object at the same time.

Charge batteries only with a charger suitable for charging them.

Do not modify the boat's electrical system or related drawings; modifications and maintenance should be left to a professional.

NOTE! The main circuit breaker must not be turned OFF if the engine is running as this may destroy the engine's electrical system.

8.4 Wiring diagrams



***Silver*[®]** **TIGER**

Silver Tiger Day Cruiser

Owner's manual

FOREWORD

Congratulations on choosing a Silver Boat!

This manual will familiarise you with the features of your new vessel and help with its care and maintenance. It has been written to help you learn to handle your craft safely and avoid any problems. Make sure that you have received manuals for all equipment fitted on your boat. Supplement this manual with the specifications and manuals of equipment you purchase later for your boat. Space has been left for your own notes at the end of the manual. Please read this manual carefully and familiarise yourself with the craft before using it.

If this is your first craft, or you are changing to a type of craft you are not familiar with, please ensure that you obtain sufficient handling and operating experience before assuming command of the craft. This is highly important for your own comfort and safety. Your dealer or national sailing association or yacht club will be happy to advise you of local boating schools or competent instructors.

This owner's manual is not a detailed maintenance or troubleshooting guide. In case of difficulty please contact the dealer. Always use qualified and competent people for the maintenance, repair and modification of the boat. Modifications that may affect the safety characteristics of the craft must be assessed, executed and documented by competent people. The manufacturer is not responsible for modifications they have not approved.

Always keep your boat in a good condition and be aware that the boat requires maintenance and servicing. Any craft, no matter how strong it may be, can be severely damaged if not used properly. Always adjust the speed and direction of the craft to prevailing weather conditions.

We wish you enjoyable and relaxing times on board your Tiger DC

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Finland

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Please keep this user manual in a secure place, and hand it over to the new owner if you sell the craft.

Table of contents

1 General	6
1.1 DECLARATION OF CONFORMITY	6
2 Definitions	9
3 Warranty	9
4 Before use	9
4.1 Registration	9
4.2 Insurance	9
5 Characteristics and use of your boat	10
5.1 General	10
5.2 Basic information	10
5.3 Maximum recommend number of passengers	13
5.4 Loading	13
5.5 Engine and propeller	14
5.6 Prevention of water incursion and stability	14
5.6.1 Hull and deck through fittings and closing valves	14
5.6.2 Stability and buoyancy	16
5.7 Preventing fires and explosion hazards	16
5.7.1 Refuelling	16
5.7.2 Other fuel-operated systems (diesel heater optional accessory)	17
5.7.3 Fire protection	17
5.8 Main power switches and circuit breakers	18
5.9 Operation	19
5.9.1 Controls	19
5.9.2 Emergency switch	19
5.9.3 Gearshift and throttle	20
5.9.4 Adjusting the trim angle	20
5.9.5 Starting the engine	22
5.9.6 Driving	22
5.9.7 Approaching and leaving the dock	23
5.9.8 Using the canopy	24
5.9.9 Windshield door	24
5.9.10 Stairs, sharp windshield corner and cabin door	25
5.10 Proper use – other recommendations and guidelines	25
5.10.1 Man overboard	25
5.10.2 Securing loose equipment	25
5.10.3 Bow cabin sliding door	26
5.10.4 Respect for the environment	26
5.10.5 Anchoring and mooring the boat	26
5.10.6 Towing	27
5.10.7 Trailer transport	28

5.10.8 Docking	29
6 Servicing and maintenance	29
6.1 Washing and waxing the boat	29
6.2 Care instructions for seat cushions	30
6.3 Care instructions for the canopy	30
6.4 Care instructions for the windshield	30
6.5 Care instructions for the stainless steel components	31
6.6 Care instructions for the steering system	31
6.7 Care instructions for electrical components	31
6.8 Minor superficial repairs	31
7 Winter storage	32
7.1 Measures before winter storage	32
7.2 Measures before launching the boat	33
8 Layout	34
8.1 General lay-out	34
8.2 Fuel system	34
8.3 Steering system	35
8.4 Electrical system	35
8.5 Wiring diagram	37

BEFORE YOU SET OFF

Familiarise yourself with this owner's manual.

Always check at least the following before leaving:

- **Weather conditions and forecast**
Take the wind, waves and visibility into account. Are the design category, size and equipment of your boat, as well as the skills of the skipper and crew, adequate for the waters you are headed for? Hull windows and hatches must be battened down during high wind and rough seas to prevent water incursion.
- **Loading and stability**
Do not overload the craft and distribute loads appropriately. Heavy items are to be placed in the storage compartments under the aft seat. Also note that the boat is less stable if people stand up when on board.
- **Passengers**
Ensure that there are personal flotation devices or lifejackets for all people on board. Agree on crew tasks before setting off.
- **Fuel and fuel system**
Make sure that the boat has enough fuel, including a 20 % reserve for heavy weather or other unforeseen eventualities.
- **Engine and manoeuvring equipment**
Check the function and condition of steering and remote control and carry out routine checks according to the engine manual.
- **Seaworthiness**
Check the boat's seaworthiness: no fuel or water leaks, safety equipment available on board, etc. Check that there is no water in the bilge.
- **Fastening of equipment**
Check that all onboard items are positioned so that they will stay in place even in rough seas and high winds. Please note that the seat cushions may fly overboard if they are not fixed properly with press studs.
- **Nautical charts**
Unless you are navigating in completely familiar waters, ensure you have nautical charts on board that cover a large enough area! Your boat is equipped with a chart plotter, so learn how to use it before setting off. Ensure that the plotter charts are of the latest edition.
- **Leaving the berth**
Agree with the crew who will release each mooring line, etc. Be careful not to let mooring lines or the anchoring line become fouled in the propeller during manoeuvring.
- **Obligatory equipment**
What is considered obligatory equipment varies between different countries. Find out what is required for your boat.

You will find additional instructions concerning the engine in the separate engine manual.

1 General

The owner's manual will help you familiarise yourself with the properties and features of your new boat and with its care and maintenance. Separate manuals for installed equipment are attached and are referred to in many sections of the owner's manual. You can supplement this user manual by adding the manuals of devices which are installed afterwards. There is also space for your own notes at the end of the manual.

The craft has a running serial number, a WIN-code (Watercraft Identification Number). The WIN-code can be found on the starboard side of the transom just below the bathing platform. We recommend that you write down the WIN-code in this manual. When contacting the dealer, please provide the WIN code and the type of craft. This helps in delivering the correct spare parts.

1.1 DECLARATION OF CONFORMITY

Recreational Craft Directive 2013/53/EC

Manufacturer: Fenix Marin Oy

Module used: B, EC Type-examination

THIS DECLARATION IS PREPARED BY

Marketer: TerhiTec Oy /Oy Brandt Ab

Address: Sorvitie 4

Postal code: 63700

City: Ähtäri

Country: (code): FIN

(spelled out): Finland

NOTIFIED BODY

Name: Eurofins Expert Services

ID number: no. 0537

Address: Post Box 47

Postal code: 02151

City: Espoo

Country (code): FIN

(spelled out): Finland

EC type examination certificate:

EUFI 29-190005156

DESCRIPTION OF THE RECREATIONAL CRAFT

Brand name of the recreational craft

Silver

Model or number

Tiger Day Cruiser

Design category

C

Boat type*	03
Hull type*	01
Deck*	02
Construction material*	02
Propulsion*	02
Engine type*	01
Maximum permitted engine power (kW)	111
Length and width of hull (m)	6.06 / 2.36
Draught (m)	0,4

* Please refer to codes on next page

I declare under my own and sole responsibility that the recreational craft mentioned above complies with all applicable essential requirements as specified on the following page.

Vantaa, 1st of November 2019

Peter Krusberg
Product Development Manager, Silver Boats, Z- series

Boat type:	Deck:
01 sailboat	01 decked
02 inflatable	02 partly decked
03 other: motorboat	03 open:
Hull type:	Propulsion:
01 monohull	01 sails
02 multihull	02 petrol engine
03 other:	03 diesel engine
	04 electrical motor
	05 oars
	06 other:
Construction material:	Engine type:
01 aluminum, aluminum alloys	01 outboard
02 plastic, fibre reinforced plastic	02 inboard
03 steel, steel alloys	03 z or sterndrive
04 wood	04 other:
05 other:	

	General requirements	
	Basic information	EN ISO 8666:2002
A2.1	Vessel identification	ISO 10087:2006
A2.2	Builder's plate	RCD annex I, 2.2
A2.5	Owner's manual	EN ISO 10240:2004
	Arrangements and equipment	
A2.3	Protection from falling overboard	EN ISO 15085:2003 / A1:2009
A3.7	Storage of life rafts	RSG Guidelines
A3.8	Exit	EN ISO 9094-1:2003
A3.9	Anchoring, mooring and towing	EN ISO 15084:2003
A5.7	Navigation lights, shapes and sound signals	1972 COLREG
A5.8	Discharge prevention	EN ISO 8099:2000
	Installation requirements	
A5.1	Engines and engine spaces	
A5.2	Fuel system	EN ISO 10088:2013, EN ISO 11105:1997
A5.3	Electrical system	EN ISO 10133:2012, EN ISO 28846:1993/A1:2000
A5.4	Steering system	EN ISO 10592:1995 / A1:2000
A5.5	Gas system	EN ISO 10239:2014
A5.6	Fire protection	EN ISO 9094-1:2018
	Dimensions	
A3.1	Structure	EN ISO 12215-5:2008, EN ISO 12215-6:2008
	Hydrostatics	
A3.2	Stability and freeboard	EN ISO 12217-1:2015
A3.3	Carrying and floatation capacity	EN ISO 12217-1:2015
A3.6	Manufacturer's recommendation for the maximum load	EN ISO 14946:2001 / AC 2005
A3.4	Openings in hull, deck and superstructure	EN ISO 9093-1:1997, EN ISO 12216:2002
A3.5	Water incursion	EN ISO 15083:2003, ISO 8849:2003
	Handling characteristics	
A4	Handling characteristics	EN ISO 11592:2001, RSG Guidelines RFU 114, EN ISO 8665:2006
A2.4	Visibility from the principal steering station	EN ISO 11591:2011

2 Definitions

The warnings and cautions in this manual are defined as follows:

- | | |
|-----------------|--|
| DANGER! | Denotes an extreme hazard that will result in a high probability of death or permanent injury if proper precautions are not taken. |
| WARNING! | Denotes a hazard that can result in injury or death if proper precautions are not taken. |
| NOTE! | Denotes a reminder of safe practices or directs attention to unsafe practices which could result in personal injury or damage to the craft or components or the environment. |

SI system units are used in this manual. In some cases, other units have been added in brackets. An exception is wind speed, for which the Beaufort scale is used in the Recreational Craft Directive.

3 Warranty

The boat and its factory-installed equipment have a two-year warranty, starting on the first day of use. Please contact your dealer regarding any potential warranty issues. Please remember to provide the WIN code. If possible, please provide a digital photograph of the subject of your claim. This usually speeds up the claims process.

4 Before use

4.1 Registration

Registration regulations vary between different countries. Find out what is required in relation to your own boat.

4.2 Insurance

Boat insurance can compensate damage occurring on water or during transport and lifting. Check who has insurance liability each time when having the boat lifted. Insurance also has an indirect effect on safety at sea: In the event of a serious accident or damage, you must, above all, concentrate on saving people. Insurance companies will be able to give more information about different insurance alternatives. Check who has insurance liability each time when having the boat lifted or transported!

5 Characteristics and use of your boat

5.1 General

This user manual is not intended to be a complete service or repair manual; it simply guides the user on how to use the boat in the proper manner.

5.2 Basic information

Recreational crafts can be constructed according to 4 categories (A, B, C and D) under the Recreational Craft Directive 2013/53/EC. This boat has been constructed according to design category C. The meanings of the various design categories are explained below.

Category A: The boat is built for conditions where wind speed can exceed 8 Beaufort (approx. 21 m/s), and where the significant height of the waves (please refer to note below) can exceed 4 metres. In such circumstances the boats are largely self-sufficient. Category A does not include abnormal conditions such as hurricanes. Such conditions may be encountered on extended voyages, for example when crossing oceans, or in coastal areas where there is an open expanse of sea for several hundred nautical miles off the coast.

Category B: The boat is built for conditions where wind speeds can reach a maximum of 8 Beaufort (approx. 21 m/s), and where the corresponding significant height of the waves (please refer to note below) is 4 metres at most. Such conditions may be encountered on offshore voyages of sufficient length, or on coastal waters when unsheltered from the wind and waves for several dozens of nautical miles. These conditions may also be experienced on inland seas of sufficient size for the wave height to be generated.

Category C: The boat is built for conditions where wind speeds can reach a maximum of 6 Beaufort (approx. 14 m/s), and where the corresponding significant height of the waves (please refer to note below) is 2 metres at most. Such conditions may be encountered on exposed inland waters, in estuaries, and in coastal waters in moderate weather conditions.

Category D: The boat is built for conditions where wind speeds can reach a maximum of 4 Beaufort (approx. 8 m/s), and for corresponding seas (significant wave height does not exceed 0.3 metres, and the height of the greatest waves does not exceed 0.5 metres). Such conditions may be encountered on protected inland waters, and in coastal areas during fine weather conditions.

Note: Significant wave height is a term used in boat design. In practice, significant wave height means the average height of the highest third of all wave heights measured in the waters. If the significant wave height is 2.0 m, the mean height of all waves is roughly 1.2 m.

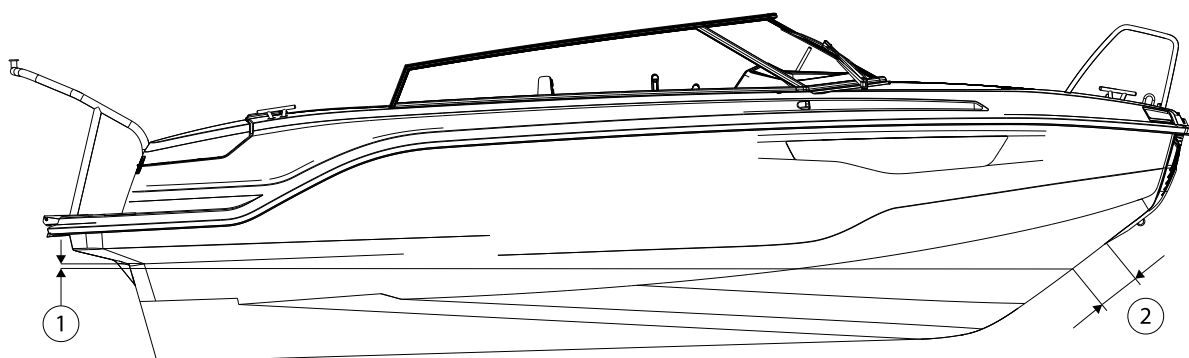
Maximum recommended load: See *technical specifications*
See also section 5.4 “Loading”.

Main dimensions and capacities: See *technical specifications*
Craft length, width, draught, total weight, etc., and tank capacities are shown in the technical specifications.

Builder’s plate:
Part of the aforementioned information is given on the builder’s plate, which is affixed next to the remote control. Supplementary information is provided in the appropriate sections of this manual.

Technical specifications

Model	SILVER TIGER DC
Design category	C
Overall length (swim ladder not included)	6.06 m
Width	2.36 m
Weight without engine, fluids and equipment	approx. 1100 kg
Weight on trailer with largest recommended engine	approx. 1551 kg Includes the boat (approx. 1100 kg), outboard engine 150 hp (261 kg) and the estimated weight of fluids and equipment (190 kg). NOTE! This is not the maximum weight of fluids and equipment.
Weight on trailer with the largest engine that complies with the standard	approx. 1551 kg Includes the boat (approx. 1100 kg) and a 150 hp engine (261 kg) and the estimated weight of fluids and equipment (190 kg). NOTE! This is not the maximum weight of fluids and equipment.
Maximum weight of load / Maximum number of passengers	750 kg 8 persons
Maximum load includes	600 kg / 8 persons (75 kg each) + personal equipment 40 kg + fuel 80 kg + fresh water 30 kg as additional equipment
Maximum load on builder's plate (CE sign)	640 kg Includes passengers 8 x 75 kg = 600g + personal equipment 40 kg = a total of 640 kg
Weight at full load	3434 kg Includes the boat 1,100 kg + engine 261 kg + battery 20 kg + basic equipment 60 kg + personal equipment 40 kg + fuel 80 kg + water 30 kg + passengers 600 kg
Maximum engine power	111 kW / 150 hp
Weight of largest recommended engine	261 kg
Fuel tank capacity	107 litres
Maximum draught at full load, engine up	0.43 m
Maximum height from water line at light load	1.3 m
Construction material	Glass fibre reinforced polyester
Colour code:	RAL 9016
Hydraulic hoses	5.5 m
Maximum speed at boat test	approx. 40 knots

**Antifouling line:**

- | | |
|---------------|--|
| - No 1, stern | 20 mm downwards from lower corner of bath platform |
| - No 2, bow | 210 mm downwards along the bow from lower edge of bumper |

NOTE!

The measurements indicate the upper limit of antifouling **paint**, **not the boat's water line**.

5.3 Maximum recommend number of passengers

The boat's maximum recommended number of passengers is 8 persons.

WARNING!

Do not exceed the maximum recommended number of passengers. Regardless of the number of passengers, the total weight of people and equipment must never exceed the maximum recommended load (please refer to Section 5.4, "Loading"). Always remain seated on the boat. All persons on board must remain seated while the boat is moving.

5.4 Loading

The boat's maximum permitted load is 750 kg. This load includes the following weights:

- The total weight of passengers 600 kg (the default weight of an adult is assumed to be 75 kg and that of a child 37.5 kg)
- Liquids 110 kg (fuel 80 kg and fresh water 30 kg)
- Personal equipment (e.g. recreational and overnighting equipment) 40 kg

NOTE!

The maximum permitted load only includes the weights mentioned above.

WARNING!

Never exceed the maximum recommended load when loading the craft. Always load the craft carefully and distribute loads appropriately so that the boat is on an even keel. Heavy equipment should usually be placed in the storage compartment under the aft seat. If the boat is carrying the maximum number of passengers, heavy items should be placed in the bow so that the boat will not be tail-heavy. Always avoid placing heavy items high up.

5.5 Engine and propeller

The maximum engine power for the boat is 150 hp (111 kW). Do not use the boat with an engine that has an output higher than the kW limit given on the CE plate (150 hp) . Using a more powerful engine than specified on the CE plate will void the boat's warranty. Follow the dealer's instructions when choosing the propeller for your boat.

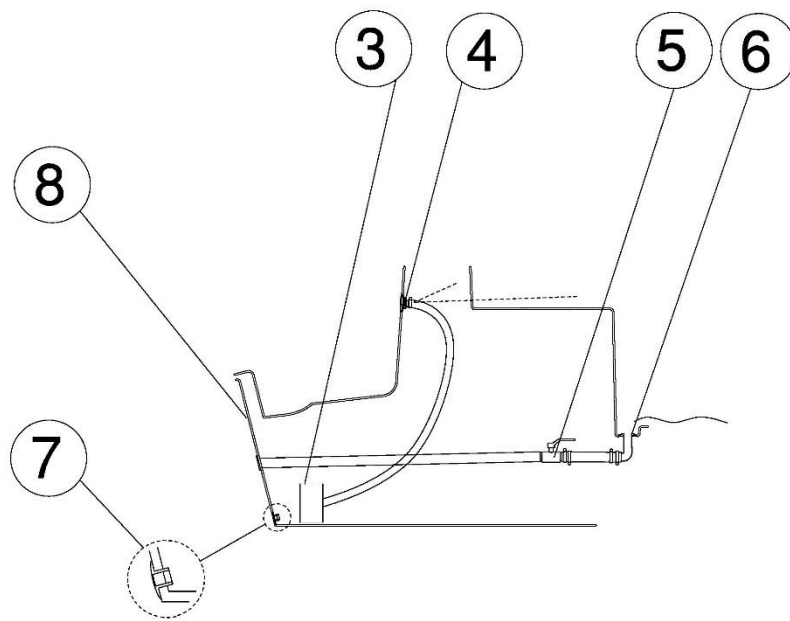
5.6 Prevention of water incursion and stability

5.6.1 Hull and deck through fittings and closing valves

The boat has a rainwater drainage system, which means that rainwater in the open space of the boat is drained when the boat is on the water. The system also functions when the boat is out of water, provided that the bow is higher than the stern and closing valve is open. The rainwater drainage valve is located underneath the middle hatch of the aft sofa. This drain valve is meant to be shut only when at heavy load to prevent potential water incursion. **In other loading conditions the drainage valve should remain open to let rainwater drain from the boat.**

The boat has an electric bilge pump in the bilge (location shown in the picture below). The function of the bilge pump is automatic meaning that it will automatically empty the bilge if there will appear water. The capacity of the electric bilge pump is about *40 l/min*. On the right hand of the steering wheel you find the manual switch to turn on the electric bilge for testing/checking the function. In the switch there is a light that will turn on if there is water in the bilge. If the light turns on you should immediately check the bilge by open the inspection hatch in the plywood bottom plate underneath the middle hatch in the aft sofa. If the bilge is empty you can continue boating but if the light turns on again and pump starts to empty the bilge you have to immediately drive to the shore and nearest harbour or landing-stage and thereafter lift up the boat from water to find out the reason to the leakage.

The electric bilge pump can be checked by removing the plywood plate underneath the middle hatch of the aft sofa. The pump can be lifted up by gripping the hose as it is only submerged in a kind of pocket.



Rainwater drainage system and bilge pump system

3. Electric bilge pump

4. Bilge pump hose

5. Rainwater drainage pipe valve

6. Rainwater drainage through fitting

7. Drain plug for bilge

8. Shut-off flap, aft end of drainage pipe

The owner of the boat is responsible for ensuring that there is at least one baler or bucket in the boat.

WARNING!

The bilge pump system is not intended to cope with a leak caused by running aground or other equivalent damage (hull damage).

SAFETY MEASURE!

Regularly check to ensure that there is no debris around suction grid of the bilge pump.

WARNING!

Always keep the drainage pipe valve shut when the pipe's inboard end is constantly under water due to heavy loading. The shut-off flap on the transom only prevents water from entering the boat when reversing!

NOTE!

Make sure that water can flow unobstructed through the drainage pipe. Debris such as autumn leaves may obstruct the water flow, which can cause the boat to fill with water and sink. The bilge pump system does not work in conditions below 0°C.

NOTE!

There is always some condensed water in the bilge. The hull bushings may also allow water to seep through, particularly as the boat ages. Always remember to check the bilge before you leave the boat at quay or buoy, and always before setting off. Have any leaks repaired at an authorised repair shop.

WARNING! The boat's handling properties may become extremely dangerous if there is water in the bilge.

5.6.2 Stability and buoyancy

Please note that stability will be reduced by any weight added high up on the boat. Any change in the distribution of weight on board may significantly affect the stability, trim and performance of your boat. Please remember that large breaking waves always present a serious danger to stability.

5.7 Preventing fires and explosion hazards

5.7.1 Refuelling

Shut off the engine and extinguish any cigarettes before starting to refuel. During refuelling, do not use switches or appliances that can cause a spark.

When refuelling at a service station, do not use a plastic funnel, since it will prevent the tension between the refuelling nozzle and filling vent from being discharged.

Hint: If you are afraid of getting fuel on the synthetic teak deck during refuelling, wet the deck with water. You can also hold a rag in front of the fuel filler to prevent fuel from splashing on the deck.

Always keep a spare can of fuel on board. The anchor boxes at the stern are especially suitable for storing the spare canister as there is no risk of vaporised fuel coming into contact with battery compartments or the electrical system from either of these boxes.

Do not stow any loose items under the aft sofa that could prevent fuel flow to the engine if they shift. Check the fuel hoses annually for wear, especially at through fittings.

Please note that, depending on the trim of the boat or the boat's heeling angle, it might not be possible to use the full capacity of the fuel tank.

If the boat is on trailer behind a car when refuelling, please note that the fuel tank ventilation does not work efficiently if the bow of the boat is downwards.

WARNING! Vaporised fuel is highly explosive. Observe these instructions and the utmost caution during refuelling. The smell of fuel always means that there is vaporised fuel on your boat.

5.7.2 Other fuel-operated systems (diesel heater optional accessory)

The diesel-operated heater (optional accessory) has its own user manual and the operation is not described in this manual. The fuel tank for the heater is located underneath the aft sofa. Turn off the heater when refuelling the diesel tank. When handling diesel, do not use switches or appliances that can cause a spark. Always clean any spilled fuel immediately.

NOTE! If the boat is equipped with a heater (optional accessory), do not block the exhaust grates when the heater is switched on. This will cause the heater to overheat and engage the overheat protector.

5.7.3 Fire protection

The boat is equipped with a portable 2 kg fire extinguisher class 8A 68 B, which is the minimum power requirement for extinguishers. For the extinguisher to remain reliable, it should be inspected annually by an authorised inspector. In the event that the fire extinguisher is replaced, the capacity of the new one must be at least equivalent to the old.

The fire extinguisher is located underneath the aft sofa hatch on port side.

Ensure that firefighting equipment is readily accessible even when the boat is loaded. Inform members of the crew about the location and operation of fire-fighting equipment. The fire extinguisher is located in the storage compartment of the aft sofa on port side (left-hand side) in the open deck space. There is a red extinguisher sign outside sofa showing the location of the extinguisher.

Remember:

- Never hinder access to safety equipment, for instance the switches to the electric system.
- Never hinder access to fire extinguishers located in a box.
- Never leave the boat unsupervised while the cooker or heater is on.
- Never make alterations to any of the boat's systems (especially the electricity or the fuel systems) or allow an unqualified person to make alterations to any of the boat's systems.
- Never refill a fuel tank when the boat's engine is running, or the cooker or heater is on.
- Never smoke while handling fuel or gas.

5.8 Main power switches and circuit breakers

Operation of the main power switches:

- Clockwise position → Circuit switched on when green colour
- Counter-clockwise position → Battery disconnected when red colour

If your boat is equipped with 2-battery-system switch the power off from both main switches when leaving the boat, and always switch both switches on when using it.



Electric circuit fuses are located to the left of main power switch(es). Fuse sizes are presented in the electrical diagram. Do not change the circuit breaker amperages or install any components that exceed the nominal amperage of the circuit in the electric system.

Remember to always use both main switches when switching the power off or on. Remember also to switch off the main power switch before making any electrical installations.

All fuses are automatic circuit breakers. In the event of a fault current, the circuit breaker will trip.

You can reset the circuit breaker by pushing it back in. If the circuit breaker immediately trips again, there is a short-circuit somewhere in the electrical system or in a component. You must leave repairing the boat's electrical system to a professional electrician.

NOTE! Remember also to switch off the main power switch before making any electrical installations.

NOTE! Never switch off the main switch while the engine is running! It can cause

serious damage to the engine's electric system.

NOTE! Do not perform electric installations (such as changing lamps) when the power is on. Leave any larger installations to professionals.

NOTE! When connecting or disconnecting the battery, do not touch both terminals simultaneously with metal objects.

5.9 Operation

If this is your first boat or a boat type new to you, take someone with experience of a similar boat with you the first few times you operate it.

5.9.1 Controls

You will quickly learn how to control your boat, but changing weather conditions, such as wind and waves, will always present new challenges for the driver. The remote control combines the functions of throttle, forward and reverse gears, and the adjusting of the engine trim angle. The boat is equipped with hydraulic steering.

5.9.2 Emergency switch

The emergency switch is a device that you have to attached to the remote control or to the ignition key panel (depending on what outboard motor brand). The other end you should attach around your knee. The emergency switch automatically switches off the engine when detached from the remote control. It is very important that the boat will come to a halt if the driver, for whatever reason, loses his/her balance and is flung from the helm.

NOTE! Never take control of the boat without having attached the emergency switch to yourself. If you attach the emergency switch to your arm, do not steer the boat with that arm, because the chain may be tangled in the steering wheel during tight turns.

NOTE! The engine will not start if the emergency switch is not attached to the switch on the remote control.

DANGER! A rotating propeller presents a life-threatening danger to a swimmer or a person who has fallen overboard. Always use the emergency switch to turn off the engine when a swimmer or water skier is about to re-enter the boat from the water.

5.9.3 Gearshift and throttle

The engine is put into gear by pushing the button on the gear/throttle handle upwards with your fingers and by pushing or pulling the gear/throttle lever forward or backward, depending on the direction in which you are planning to go. When the engine is in gear, you can adjust the boat's speed using the same gear/throttle lever.

When the boat is travelling forward slowly, you can use the reverse gear for braking when approaching the dock, for instance. Shifting into reverse must not be done if the boat is travelling at higher speeds, because it will damage the engine.

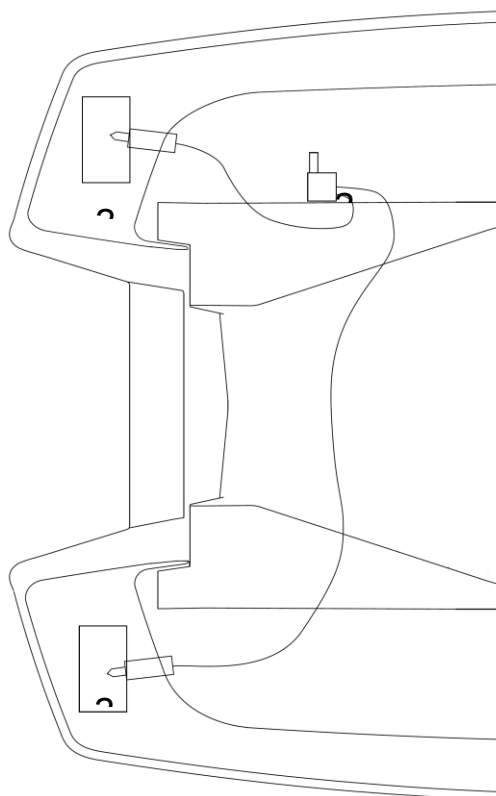
5.9.4 Adjusting the trim angle

These are the main rules when adjusting the trim angle:

- When bringing the boat to plane, keep the 'bow down' position.
- When the boat is planing and seas are calm, keep lifting the bow until you can feel that both the engine and the boat move very easily. In calm waters, the engine should normally be trimmed up at least 3 scale marks on the trim indicator on the revolution counter. If the engine is trimmed up too much, the speed of the boat will be reduced. If the boat is trimmed too low, the boat will run slowly, and the engine will run heavily. To achieve good fuel economy, it is important to drive the boat with the right engine trim angle.
- In heavy head seas, lower the bow to allow it to slice through the waves better, thus providing a smoother ride.
- In following seas, raise the bow to avoid 'diving' into the waves.

WARNING!

Do not drive the boat at high speeds with the engine trimmed up (bow up), as there is a risk of sudden heeling when the propeller hits the water again after a flight in heavy waves. Likewise, do not drive at high speed with the engine completely trimmed down (bow down) since this can cause the boat to pitch unexpectedly when the bow hits the water. The boat may become unstable when turning if the bow is too low.



Trim flap system

1. Control panel at helms man position
2. Distribution unit
3. Trim flaps

WARNING!

If you use the trims manually, adjust the trim controllers carefully at high speeds. They will change the behaviour of the boat radically.

WARNING!

Waves reduce manoeuvrability and make the boat heel. Accordingly, reduce speed when encountering heavier seas.

5.9.5 Starting the engine

1. Switch the power on using the main power switch.
2. Lower the engine to the driving position by pressing the Power Trim button on the gear/throttle handle.
3. Check that the gear/throttle handle is in the neutral position and that the emergency switch is attached to the bottom of the remote control.
4. Switch on the current, using the start key, without starting the engine and wait a few seconds for the warning lights to light up.
5. Start the engine by turning the ignition key clockwise until the engine starts. If everything is in order, the engine should start within 1-2 seconds. If the engine does not start, you should not try to start it for more than 10 seconds at a time.
6. After the engine has started, let it idle for a few minutes before setting off. (Please refer to the engine manual!)

For more detailed information, please refer to the engine manual.

5.9.6 Driving

It is easy to drive when the weather is fine and the sea is calm. However, always remember to keep an adequate lookout. In order to maintain the best possible visibility from the driver's position, you should do this:

- Ensure that passengers do not restrict your visibility.
- Do not drive near planing speed for long periods, as the bow comes up and reduces visibility.
- When visibility is poor, look over the windshield.
- Remember to also keep a lookout behind you, particularly on shipping lanes.

Use navigation lights in darkness.

Always adjust your speed to prevailing conditions and the environment. Take into account the following:

- waves (also consult the passengers on what is a comfortable speed);
- your own bow wake (greatest at planing speed, smallest at speeds under 5 knots);
- visibility (islands, fog, rain, driving against the sun);
- familiarity with the route (time required for navigation);
- width of the route (other traffic, noise and bow wake near shore).
- Make sure to always maintain a sufficient distance to avoid collision. The distance must be sufficient to stop the boat or to take evasive action.

When running at low speed, a planing boat's directional stability is poorer than at higher speeds. So be careful in narrow passages and, particularly, when meeting other boats.

You must learn the rules of traffic on sea lanes and follow the international regulations on how to avoid collisions at sea, COLREG. Navigate with care and use new or updated nautical charts.

The running position of the boat greatly affects its handling characteristics and fuel consumption as well as visibility from the driver's position. You can affect the running position by:

- placing the load properly – the general rule being that you should place as little weight in the bow as possible; and
- adjusting the trim angle.

The combination of the right running position with the right speed also makes driving in rough seas safer and more comfortable.

WARNING!

A high speed and sudden manoeuvring in rough seas can lead to loss of control over the boat and large heeling angles.

NOTE!

The boat is not designed to jump waves. The warranty does not cover damage caused by flight. It is possible to check whether the engine has been airborne from the engine history on the repair shop's computer.

5.9.7 Approaching and leaving the dock

Practise boat manoeuvring skills where there is ample space to learn how to approach a dock before entering a crowded marina.

A very gentle application of throttle does not generate sufficient steering power. Sharp but short throttle applications enable efficient steering movements when approaching the dock.

Ensure that everyone on board who does not have to stand up is seated when you are approaching the dock. Sudden steering movements may cause the boat to heel and injure somebody.

Before docking, prepare the mooring lines at stern and bow. Approach the dock bow first at a slight angle. Just before touching the dock, steer into it and shift into reverse. Apply throttle quickly and sharply. The boat will stop and turn parallel to the dock. If possible, make the approach into the wind or current, whichever is the strongest. This makes departing easier, as the wind or current will push the bow out from the dock. The easiest way to depart is to first push the stern as far away from the dock as possible, and then slowly reverse away from the dock into open water.

The propeller is designed to have the best grip in forward gear. Therefore, propeller performance is weaker in reverse. The steering response is also not as good in reverse as in forward gear.

- WARNING!** The boat is fast. If you are planing, it takes time to come to a stop. Slowdown in time before anchoring, beaching or docking. Learn to estimate the distance the boat needs to stop. Remember that steering control is poor if there is no traction.
- WARNING!** Do not try to stop the boat with your hands, and do not put your arm or foot between the boat and the dock, the shore or another vessel! Practise beaching and docking under favourable conditions! Use moderate but firm engine power!
- NOTE!** When securing your boat, take into consideration the possibility of changes in wind direction, rising or sinking of the water level, bow wakes, etc. You can get more information from your insurance company, for example.

5.9.8 Using the canopy

The canopy is designed to withstand a maximum speed of 30 knots at sea, and 50 km/h in road transport. All press studs must be properly fastened when using the canopy. The canopy's design allows raising just the front part. We recommend that you remove the sides and back of the canopy to make it fit into the canopy box more easily. Then, fold the upper parts of the sides entirely on top of the roof, so that no fabric remains where the corners of the canopy supports are. Finally, roll up the roof part along with the sides folded on top of it, and lower the canopy into the canopy box.

NOTE! The boat should not be driven in rain with the canopy down. The equipment in the open deck space is not water-tight and must be protected from the rain.

NOTE! The windscreen and canopy do not necessarily form a watertight seal.
Water may enter the boat between the canopy and windshield when the canopy is up.

5.9.9 Windshield door

The windshield door must always be kept shut and locked when the boat is moving. The door has not been designed to be used as a railing when getting in or out of the boat.

WARNING! The door must be kept closed in rough seas or strong or gusty winds, since it may slam shut. The door is heavy and may cause injury if it strikes someone when slamming shut.

WARNING!

Large waves or gusts of wind may slam the door shut also when the boat is stationary. It is thus recommended to always keep the door closed when the passage through the bow deck is not being used.

5.9.10 Stairs, sharp windshield corner and cabin door

Great care must be taken when using the stairs, particularly when the cabin door is partly open.

WARNING!

The bow anchor box hatch is equipped with a rubber band that holds the hatch closed while driving.

WARNING!

It is not recommended that children do not use the hatch, as their fingers or toes could get caught in it.

5.10 Proper use – other recommendations and guidelines

5.10.1 Man overboard

It is always a serious situation when someone falls overboard. Rescue procedures should be practised in advance during good weather, because it is too late for practice when someone has actually fallen into the water.

It is always easiest to help a person climb back on board at the stern of the boat. A rope loop attached to the boat helps lifting. The boat's swim ladder extends 30 cm into the water. If a child has fallen overboard, an adult carrying an extra life-saving device or a fender must always jump in after the child; however, someone must always remain on board the boat.

It is very important to maintain visual and verbal contact with a person that has fallen overboard.

DANGER!

A rotating propeller presents a life-threatening danger to a swimmer or a person who has fallen overboard. Always use the emergency switch to turn off the engine when a swimmer or water skier is about to re-enter the boat from the water.

Potential life-raft, the recommended location is under the back seat

5.10.2 Securing loose equipment

Stow all heavy equipment, such as anchors, and secure them firmly before setting off.

5.10.3 Bow cabin sliding door

NOTE! The sliding door of the cabin must be kept closed while driving.

5.10.4 Respect for the environment

Conservation of the environment is a matter of honour for every boater. Therefore, you should avoid:

- fuel and oil leaks;
- emptying rubbish and waste into the water or on the shore;
- letting detergents or solvents get into the water;
- loud noise both on the water and at the marina; and
- producing an unnecessarily high bow wake, especially in narrow passages and shallow waters.

Service the engine well and run it at the most economical speed, which will also keep exhaust emissions low.

Please also consider other local environmental legislation and regulations. In Finland, under 'everyman's right' anyone may move around on private land, except in the vicinity of residential buildings, as long as they cause no damage or inconvenience. 'Everyman's right' also allows movement and temporary anchorages on privately owned waters, swimming and going on shore at uninhabited locations, unless landing is specifically prohibited by a notice from the authorities. It is not allowed to anchor next to a shoreline where there are one or more residences. Docking at a private dock owned by someone else or landing on a shore where there are residences is also not allowed without permission.

Please make sure to familiarise yourself with the International Convention for the Prevention of Pollution From Ships (MARPOL) and respect it to the greatest possible extent.

It is allowed to camp out on islands as long as no damage is caused to the landowner. It is not allowed to camp out next to residential buildings or in or near cultivated fields. You may not light a campfire unless you have the landowner's permission. Everyman's right allows the picking of naturally growing berries and mushrooms without damaging trees or the environment in general. Please check the regulations concerning movement in the natural environment in your area.

5.10.5 Anchoring and mooring the boat

Always moor your boat carefully, even in sheltered places, because conditions can change rapidly. Mooring lines should be equipped with absorbers to dampen any jolts. Please refer to the section Towing for the location of bollards. To prevent abrasion, use fenders that are large enough.

The forward endurance of the bow bollards is at least 23 kN, or c. 2,300 kg. The backward endurance of the stern bollards is at least 16.0 kN, or c. 1,600 kg.

The minimum anchor weight for the boat is 5 kg. Drop anchor far enough from shore. A reasonable grip is attained if the anchor line length is 4–5 times the water depth.

WARNING!

Do not try to stop the boat with your hands, and do not put your arm or foot between the boat and the dock, the shore or another vessel!

NOTE!

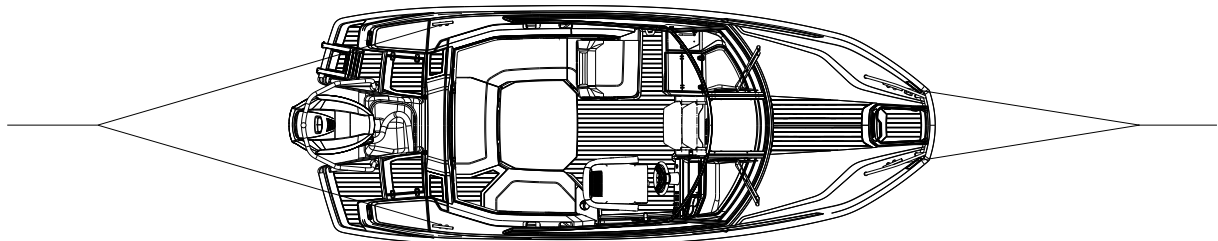
When securing your boat, take into consideration the possibility of changes in wind direction, rising or sinking of the water level, bow wakes, etc. You can get more information from your insurance company, for example.

5.10.6 Towing

When towing another boat, use a floating line that is strong enough for the task. Begin towing slowly, avoid jerks, and do not overload the engine.

The owner of the boat should consider the measures necessary for securing the boat's towrope.

If you are towing, or if your boat has to be towed, attach the towline to the bow or stern bollards as per the following image.

**WARNING!**

When towing, the towline is under high tension. If it should break, the end that snaps off may lash back fast enough to cause serious injury or death. Always use a thick enough line and keep to one side of the towline.

NOTE!

When towing another boat or being towed, always drive at low speed. If the boat has a displacement hull, never exceed hull speed while towing.

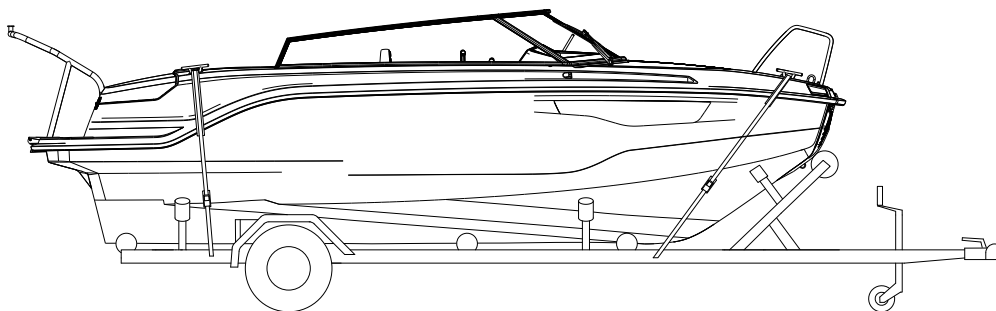
NOTE! The towline should always be fastened so that it can be unfastened under load.

5.10.7 Trailer transport

Weight data for trailer transport may be found in the technical specifications. The trailer's keel supports should bear most of the weight of the boat. Adjust the side supports so that the boat will not rock sideways. For more information, please turn to your dealer.

Clean the supports of sand and dirt so that they will not scratch the bottom of the boat. Double-check that the trailer is securely coupled to the trailer tow hitch!

The place for lifting the boat out of the water should be sheltered, and the ramp should extend deep enough into the water. Reverse the trailer so deep into the water that the rearmost keel support is just above the water. Drive the boat carefully towards the rearmost keel support. Fasten the hoist cable to the towing eye and reel the boat up onto the trailer, making sure that the boat remains straight on the trailer's centre line. Remember to trim up the engine before reeling the boat onto the trailer so that it will not hit the bottom.



Securing the boat to the trailer

Tie the boat properly before beginning transport. The sling ropes at the bow should be directed down and back, and the sling ropes at stern should be directed down and front. Do not leave any loose equipment or extra load on the boat when it is being transported. Remove the seat cushions and close all hatches properly.

The engine should be in the driving position during transport. However, ensure that there remains adequate clearance. If the clearance is not sufficient in this position, you can transport the engine raised. In this case, the engine must be supported with a suitable support to protect the transom.

If the boat is kept on the trailer between transports, you must loosen the sling ropes for the duration and tighten them before the next transport.

NOTE! The trailer should be slightly front-weighted. Make sure that the boat is fastened tight enough to the trailer and that the weight of the boat is divided equally between side supports. If the boat swings against a side support during transport, it may sustain hull damage.

When letting the boat down from the trailer, remember to fasten the bow rope to the boat beforehand so that you can release the cable/rope from the trailer hook as soon as the boat is in the water. Be careful with the winch handle!

5.10.8 Docking

The storage cradle should be sufficiently steady and suitable for this particular boat and engine combination. A sturdy plank (2x4"), should be placed between the "V" trestles to support the keel and to bear most of the weight of the boat. The boat must not rest on the side supports. The side supports should not be placed at the corners on the bottom, and point loads should be avoided. The supporting structures should be strong, particularly near the transom, to support the added weight of the engine.

Only use reputable lifting companies or boat yards with sufficient lifting capacity. In addition to the boat's tare weight (please refer to the technical specification), also take into consideration accessories and other possible loads in the boat.

When the boat is being lifted, the lines must be placed under the boat and the boat must remain horizontal during lifting.

NOTE! Do not lift the boat by its bollards.

DANGER! Never stand under a boat that is suspended from a crane.

6 Servicing and maintenance

Keep your boat and its equipment clean and tidy. This increases comfort and safety on board, and also the boat's resale value.

Familiarise yourself with the service procedures shown in the engine manual (see annex). Have your engine serviced according to the instructions in the manual.

6.1 Washing and waxing the boat

Normally it is sufficient to just wash and wax the deck and sides. Special boat cleaning agents are most suitable for the purpose. Use mild detergents. Do not use strong solvents (pH value must not exceed 11); they can cause glossy reinforced plastic surfaces to fade. Mildly

abrasive polishes can be used to remove chafes and embedded dirt from the deck. Fibre glass surfaces can be washed with a pressure washer.

Useful tip: When the boat has been washed with tap water, a thin chalk-like layer of lime and minerals will remain on the boat's surface after it has dried. The problem can be eliminated by adding a few drops of pine oil soap into a bucket of rinsing water, which will soften it.

Useful tip: Water and lime stains on stainless steel rails can be removed using Lemon Pled furniture spray. Your railings will shine like the day they came off the assembly line.

Useful tip: If the boat's ropes smell bad after the season, immerse them for a couple of hours in a bucket of water with a bottle of apple vinegar and a splash of fabric conditioner added. Allow the lines to dry properly, and they will be as good as new.

6.2 Care instructions for seat cushions

Always use the canopy or harbour cover when it is raining to protect the open deck space and seat cushions. Although the seat cushions are made of water-resistant material, water can get in through their seams. If the cushions remain damp for any length of time, they may get mouldy and be ruined. If the mattresses get wet, the fabric can be removed by unzipping the mattress and dried in the sun, at room temperature or in a sauna (50°C). The warranty does not cover cushions spoilt by rain or damp.

NOTE! To keep the boat's seat cushions in good condition over the winter, they should be stored in a dry, well-ventilated space.

NOTE! Wet cushions should not be placed in storage, because they gather mould easily.

The press studs of the seat cushions should be sprayed with silicon spray every now and then, otherwise they may become so tight that the fabric will tear when trying to open them. The warranty does not cover ripped seat cushions. Use very little silicon spray at a time in order not to stain the cushions.

6.3 Care instructions for the canopy

Store the canopy over winter in a dry and well-ventilated place. The warranty does not cover torn or mouldy canopies.

6.4 Care instructions for the windshield

The boat's windscreen is made of tempered glass and can be cleaned with ordinary glass cleaners.

Useful tip: When wiping the boat's windshield dry after cleaning, avoid using circular motions. This can leave circular smudges on the windshield that become visible in sunlight, impeding visibility. Wipe off any streaks with dry newspaper or cotton cloth using first horizontal, then vertical motions. Repeat this a few times and you'll bring the windshield to a brilliant shine.

6.5 Care instructions for the stainless steel components

To keep the boat's stainless steel parts, such as rails, handles and bollards, shining as good as new, you should keep the parts clean and waxed. The edges of the mounting flanges of the rails should also be cleaned. Any dirt that remains under the edge of the flange will begin to look like rust. In regular use (i.e. no damage), the parts should be cleaned and waxed at least twice every summer. Rail maintenance should also be performed when the boat is put into winter storage.

6.6 Care instructions for the steering system

The hydraulic steering does not require maintenance under normal circumstances. If the steering starts to feel loose, there is a leak somewhere in the system. Leaks must be repaired immediately!

WARNING!

A hydraulic steering system that has a leak or trapped air in the hoses is extremely dangerous.

6.7 Care instructions for electrical components

Electrical components like main switches, other switches and couplings do not normally need to be serviced if the boat is stored in a dry and well-ventilated place for the winter. If, however, you wish to protect electrical components against oxidation, the best way to do it is by spraying them every now and then with a moisture repellent antioxidant.

6.8 Minor superficial repairs

You can repair minor surface damage to the boat's hull or deck yourself. However, achieving a neat, unnoticeable repair requires a considerable amount of skill:

1. Protect the area around the damage with tape.
2. Bevel the edges of the damaged area and clean with acetone.
3. If the damage is deeper than 2 mm, it is advisable to smooth it with an appropriate polyfiller before painting.
4. Mix topcoat with 1.5-2 % hardener.

5. Fill the repair with more topcoat than needed, so that its surface remains slightly proud of the surrounding area.
6. Carefully put tape over the repair.
7. After the topcoat has hardened, remove the tape and sand the repair using 600 and 1200 paper applying water.
8. Buff using abrasive paste and wax.

The colours used on this boat are specified in the *technical specifications*. One point to consider is that a paint called *gelcoat* has been used in manufacturing the boat, but the surface is always repaired with a paint called *topcoat*. Gelcoat paint does not harden without a mould surface, whereas paraffin has been added to topcoat to allow it to harden.

NOTE! Some post-delivery installations and alteration work may cause damage to the structure of the boat or impair safety if not performed correctly. Please contact the dealer if you are planning any modifications.

7 Winter storage

Preparing your boat for winter storage is an annual routine. Have your boat lifted in good time before the water freezes. Your boat is not designed for use in ice and it is not meant to be used in temperatures below zero (for example, the rainwater drainage system will freeze up). It is advisable to perform all maintenance, repair and inspection procedures in connection with placing the boat in winter storage.

Familiarise yourself with the service procedures shown in the engine manual. We recommend that you leave them to an authorised service agent. Do not forget to service the remote control and steering system. Make sure to perform their maintenance according to their separate instructions and manuals.

7.1 Measures before winter storage

Wash the bottom of the boat immediately after the boat has been lifted. Algae and slime will come off easier if they are not left to dry. Empty the engine of its cooling water according to the manual.

Give the engine and other equipment their winter servicing, following their separate manuals. If your boat is stored outside or in a humid place over the winter, empty it of textiles and other equipment that may corrode or become mouldy in damp conditions. Wash the ropes in fresh water. Replace any worn ropes. Leave through fitting valves open. Remove the drain plug for the winter.

Empty the septic tank and the freshwater tank of the boat. Pour two litres of a mixture that contains 50 % ethylene glycol and 50 % water into the toilet and press the flush button for about two seconds.

Check the condition of the hull and rub down any scrapes to let possible moisture inside the laminate dry. Repair any damage in the spring before launching the boat.

Remove all food from the boat and wipe all the surfaces on which food has been handled with a disinfectant. This will prevent the formation of mould.

Always cover your boat so that snow cannot gather inside. Always make sure, however, that it is adequately ventilated. A winter storage cover is available as an optional accessory for your boat.

7.2 Measures before launching the boat

Repair any damage to the gelcoat surface according to section 6.10.

In sea areas, antifouling paint should be used to prevent the hull from becoming covered with vegetation. Fouling of the bottom and especially the propeller increases fuel consumption significantly. However, if the boat is anchored at the inlet of a stream or in a land-locked lake, or if it is lifted out of the water at least once every two weeks, it is normally not necessary to use antifouling paint. Carefully follow the paint manufacturer's instructions when applying the paint. When sanding old antifouling paint, remember that the dust is toxic.

Antifouling paint is not necessary in fresh water (lake areas). We nevertheless recommend using an epoxy primer if the boat will be in the water for several months each year. Fresh water, and warm fresh water in particular, is more readily absorbed by the laminate than sea water.

NOTE! Do not paint over the zinc anodes or the piston rods of hydraulic trim tabs. Do not apply paints containing copper on aluminium parts. Remember to follow the paint manufacturer's instructions.

Useful tip: Do not throw away a used paint brush. A dried and hardened paint brush that has been used for antifouling paint can be reused if you first soak it for a couple of hours in a mix of 2 litres of hot water, 100 ml of vinegar, and 50 ml of baking powder.

Perform the necessary service procedures required for the engine according to the engine manual. Check the functioning of electric equipment and remove any oxidation from fuse connectors etc.

Remember that petrol goes stale over time, and you must always start the engine with fresh petrol in the spring.

When the boat has been launched you should open all valves in the through fittings (bushings) and check to ensure that there are no leaking hoses or connectors. The locations of through fittings are shown in section 5. Bring your safety equipment back on board before setting out.

8 Layout

8.1 General lay-out

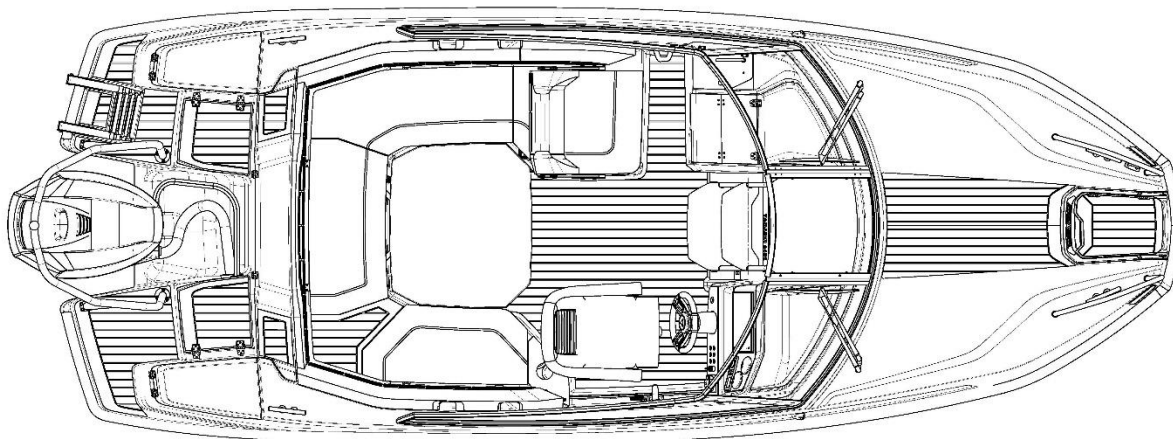


Image: General lay-out from above

WARNING!

Handle the boat's hatches with care and watch your fingers and toes. **Please pay particular attention to the bow anchor box hatch, which is equipped with an elastic band that holds the hatch closed while driving.**

WARNING!

It is not recommended that children do not use the bow anchor box hatch, as their fingers or toes could get caught in it.

8.2 Fuel system

The boat is equipped with a built-in fuel tank. A fuel filter is installed in the fuel line, also functioning as a water separator. The filter must be changed at least once a year. When a new or removed filter has been mounted, the fuel line must be filled with a ball pump before starting the engine.

NOTE!

The condition of the fuel hoses must be inspected annually, and every effort should be made to prevent damage to them. Damaged fuel hoses must be replaced. If you replace fuel hoses, make sure the new hoses have an ISO 7840 label.

The refill cap is situated under the anchor box hatch on the starboard (right) side in the stern. The location of the fuel tank refill cap is marked on the deck by the  symbol.

The cap of the fuel tank contains the text GAS, PETROL or FUEL, which refers to petrol 95E or 98E (recommendation).

8.3 Steering system

The boat is equipped with hydraulic steering. With hydraulic steering, the steering wheel's position changes constantly, which is why the boat is equipped with a symmetrical steering wheel.

The hydraulic steering does not require maintenance under normal circumstances. If the steering starts to feel loose, there is a leak somewhere in the system. Leaks must be repaired immediately!

NOTE! If you replace any component in the steering system, please note that all components must conform to the ISO 10592 standard and bear the CE mark.

WARNING! A hydraulic steering system that has a leak or trapped air in the hoses is extremely dangerous.

8.4 Electrical system

The electrical system contains the following main components:

1. Starter battery
2. Operation battery (option)
3. Wire harness
4. Main switch (2 main switches as option)
5. Battery compartment fuse panel
6. 5 x switch
7. 2 x 12 V power outlet
8. 1 USB output in chart reader
9. Navigation lights
10. Windshield wiper 2 pcs (right and left sides)
11. Fresh water pump (option)
12. Cabin light
13. Refrigerator (option)
14. Trim flap system
15. Radio (option)
16. Bow light (option)

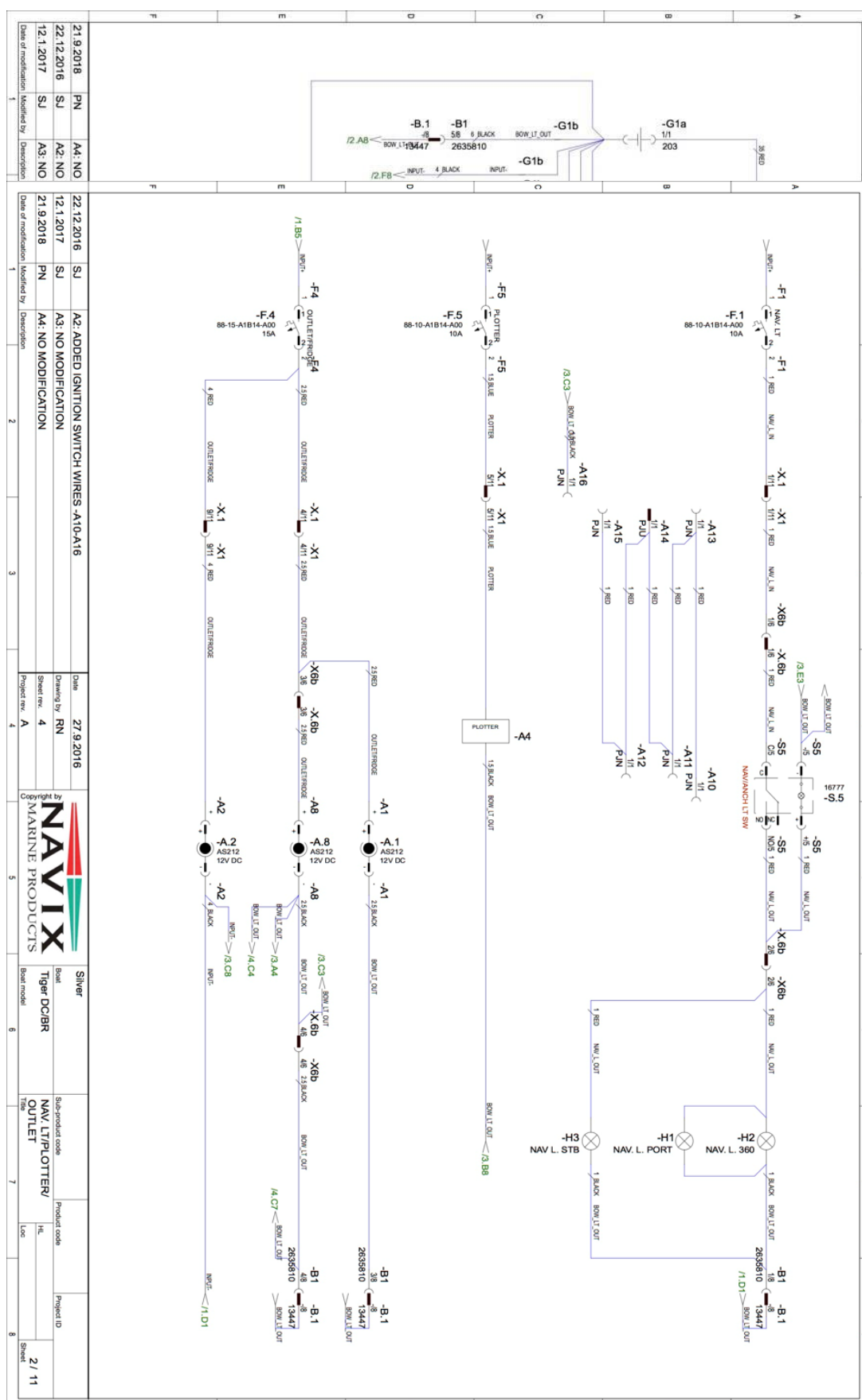
In addition, the engine is an essential part of the boat's electrical system; it both generates and consumes power.

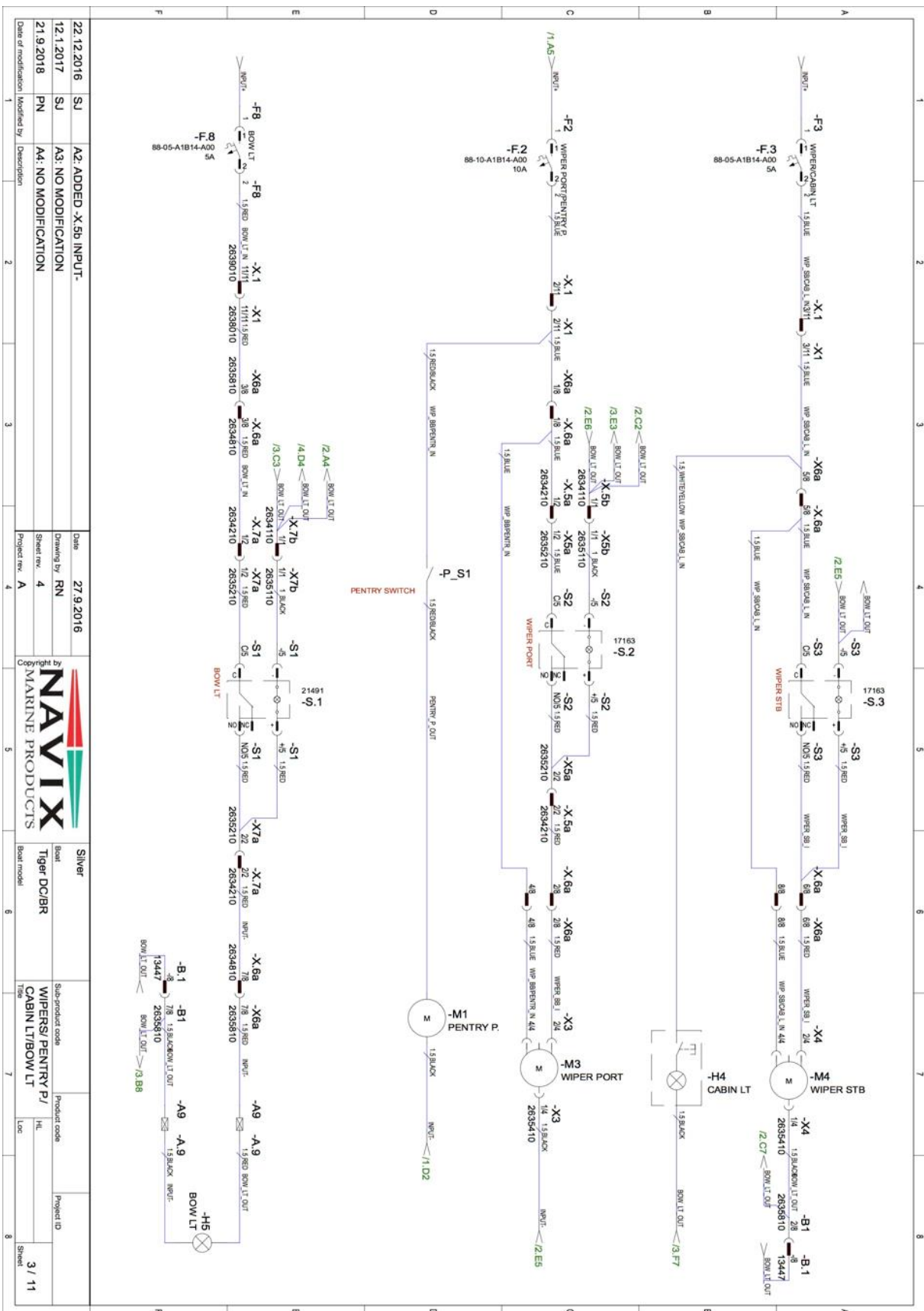
If you connect or disconnect the battery, take care not to touch both battery terminals with a metal object at the same time.

Only recharge the batteries with the boat's battery charger or one with equivalent power. Charging the battery with excessive current creates an explosion risk.

Do not alter the onboard electric system or relevant drawings; alterations and maintenance work have to be carried out by a professional.

8.5 Wiring diagram

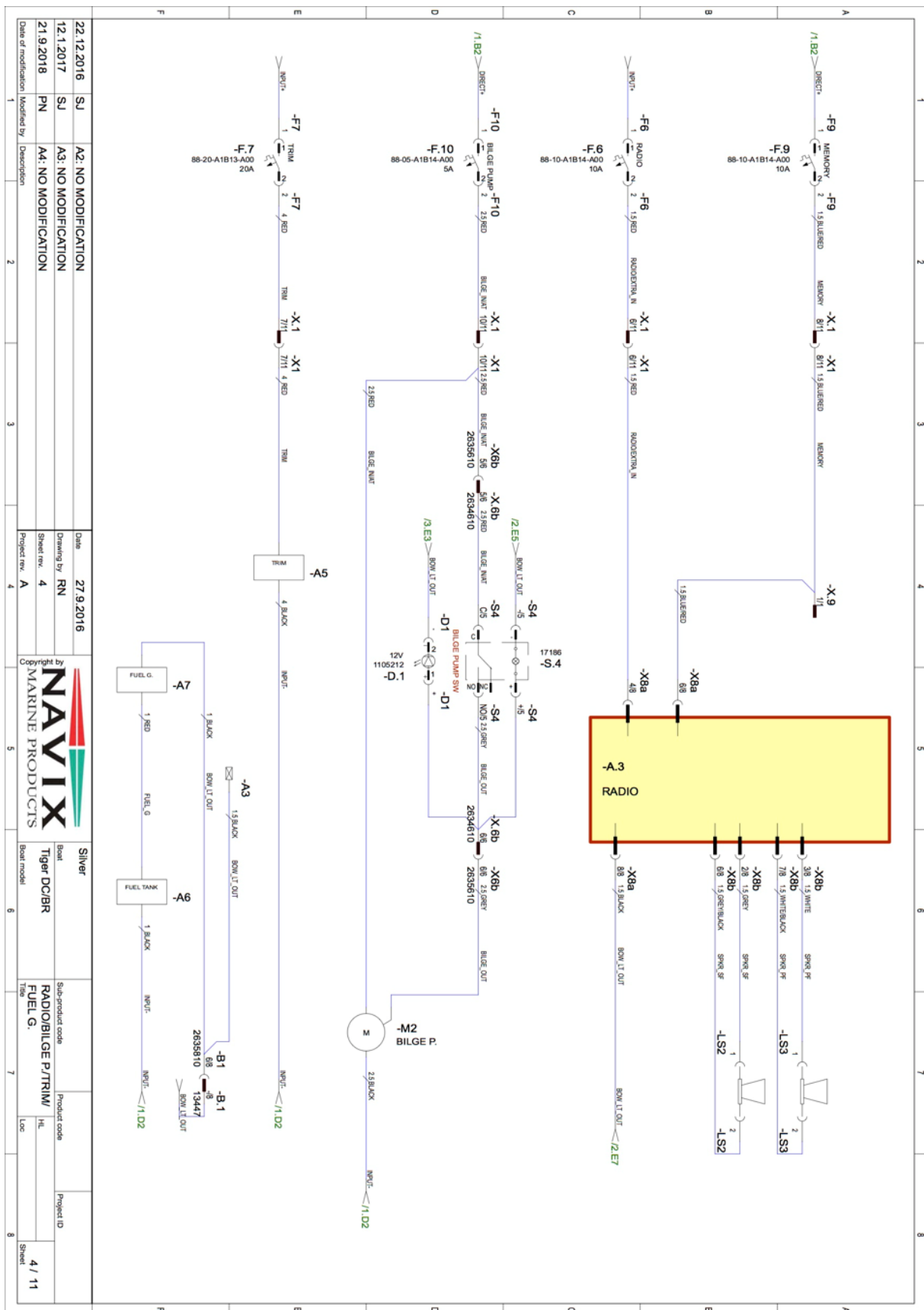




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Date of modification	Modified by	Description	Project rev.	A	Boat model	Type	Loc	Sheet
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***Silver*[®]** **VIPER^{DC}**

Silver Viper Day Cruiser

Owner's manual

FOREWORD

Congratulations on choosing a Silver Boat!

This manual will familiarise you with the features of your new vessel and help with its care and maintenance. It has been written to help you learn to handle your craft safely and avoid any problems. Make sure that you have received manuals for all equipment fitted on your boat. Supplement this manual with the specifications and manuals of equipment you purchase later for your boat. Space has been left for your own notes at the end of the manual. Please read this manual carefully and familiarise yourself with the craft before using it.

If this is your first craft, or you are changing to a type of craft you are not familiar with, please ensure that you obtain sufficient handling and operating experience before assuming command of the craft. This is highly important for your own comfort and safety. Your dealer or national sailing association or yacht club will be happy to advise you of local boating schools.

This owner's manual is not a detailed maintenance or troubleshooting guide. In case of difficulty please contact the dealer. Always use qualified and competent people for the maintenance, repair and modification of the boat. Modifications that may affect the safety characteristics of the craft must be assessed, executed and documented by competent people. The manufacturer is not responsible for modifications they have not approved.

Always keep your boat in a good condition and be aware that the boat requires maintenance and servicing. Any craft, no matter how strong it may be, can be severely damaged if not used properly. Always adjust the speed and direction of the craft to prevailing weather conditions.

We wish you enjoyable and relaxing times on board your Viper DC

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Please keep this user manual in a secure place, and hand it over to the new owner if you sell the craft.

Table of contents

1 General	6
1.1 DECLARATION OF CONFORMITY	6
2 Definitions	9
3 Warranty	9
4 Before use	9
4.1 Registration	9
4.2 Insurance	9
5 Characteristics and use of your boat	10
5.1 General	10
5.2 Basic information	10
5.3 Maximum recommend number of passengers	14
5.4 Loading	14
5.5 Engine and propeller	14
5.6 Prevention of water incursion and stability	14
5.6.1 Hull and deck through fittings and closing valves	14
5.6.2 Stability and buoyancy	16
5.7 Preventing fires and explosion hazards	16
5.7.1 Refuelling	16
5.7.2 Other fuel-operated systems (diesel heater optional accessory)	17
5.7.3 Fire protection	17
5.8 Main power switches and circuit breakers	19
5.9 Operation	20
5.9.1 Controls	20
5.9.2 Emergency switch	21
5.9.3 Gearshift and throttle	21
5.9.4 Adjusting the trim angle	21
5.9.5 Starting the engine	23
5.9.6 Driving	23
5.9.7 Approaching and leaving the dock	24
5.9.8 Using the canopy	25
5.9.9 Windshield door	25
5.9.10 Stairs, sharp windshield corner and cabin door	26
5.9.11 Fresh water system	26
5.9.12 Toilet system	27
5.10 Proper use – other recommendations and guidelines	27
5.10.1 Man overboard	27
5.10.2 Securing loose equipment	27
5.10.3 Bow cabin sliding door	27
5.10.4 Respect for the environment	28
5.10.5 Anchoring and mooring the boat	28

5.10.6 Towing	29
5.10.7 Trailer transport	29
5.10.8 Docking	30
6 Servicing and maintenance	31
6.1 Washing and waxing the boat	31
6.2 Care instructions for seat cushions	32
6.3 Care instructions for the canopy	32
6.4 Care instructions for the windshield	32
6.5 Care instructions for the stainless steel components	32
6.6 Care instructions for the steering system	33
6.7 Care instructions for electrical components	33
6.8 Minor superficial repairs	33
7 Winter storage	34
7.1 Measures before winter storage	34
7.2 Measures before launching the boat	34
8 Layout	35
8.1 General lay-out	36
8.2 Fuel system	36
8.3 Steering system	37
8.4 Electrical system	37
8.5 Wiring diagram	38

BEFORE YOU SET OFF

Familiarise yourself with this owner's manual.

Always check at least the following before leaving:

- **Weather conditions and forecast**
Take the wind, waves and visibility into account. Are the design category, size and equipment of your boat, as well as the skills of the skipper and crew, adequate for the waters you are headed for? Hull windows and hatches must be battened down during high wind and rough seas to prevent water incursion.
- **Loading and stability**
Do not overload the craft and distribute loads appropriately. Heavy items are to be placed in the storage compartments under the aft seat. Also note that the boat is less stable if people stand up when on board.
- **Passengers**
Ensure that there are personal flotation devices or lifejackets for all people on board. Agree on crew tasks before setting off.
- **Fuel and fuel system**
Make sure that the boat has enough fuel, including a 20 % reserve for heavy weather or other unforeseen eventualities.
- **Engine and manoeuvring equipment**
Check the function and condition of steering and remote control and carry out routine checks according to the engine manual.
- **Seaworthiness**
Check the boat's seaworthiness: no fuel or water leaks, safety equipment available on board, etc. Check that there is no water in the bilge.
- **Fastening of equipment**
Check that all onboard items are positioned so that they will stay in place even in rough seas and high winds. Please note that the seat cushions may fly overboard if they are not fixed properly with press studs.
- **Nautical charts**
Unless you are navigating in completely familiar waters, ensure you have nautical charts on board that cover a large enough area! Your boat is equipped with a chart plotter, so learn how to use it before setting off. Ensure that the plotter charts are of the latest edition.
- **Leaving the berth**
Agree with the crew who will release each mooring line, etc. Be careful not to let mooring lines or the anchoring line become fouled in the propeller during manoeuvring.
- **Obligatory equipment**
What is considered obligatory equipment varies between different countries. Find out what is required for your boat.

You will find additional instructions concerning the engine in the separate engine manual.

1 General

The owner's manual will help you familiarise yourself with the properties and features of your new boat and with its care and maintenance. Separate manuals for installed equipment are attached and are referred to in many sections of the owner's manual. You can supplement this user manual by adding the manuals of devices which are installed afterwards. There is also space for your own notes at the end of the manual.

The craft has a running serial number, a WIN-code (Watercraft Identification Number). The WIN-code can be found on the starboard side of the transom just below the bathing platform. We recommend that you write down the WIN-code in this manual. When contacting the dealer, please provide the WIN code and the type of craft. This helps in delivering the correct spare parts.

1.1 DECLARATION OF CONFORMITY

Recreational Craft Directive 2013/53/EC

Manufacturer: Fenix Marin Oy

Module used: B, EC Type-examination

THIS DECLARATION IS PREPARED BY

Marketer: TerhiTec Oy /Oy Brandt Ab

Address: Sorvitie 4

Postal code: 63700

City: Ähtäri

Country: (code): FIN

(spelled out): Finland

NOTIFIED BODY

Name: Eurofins Expert Services

ID number: no. 0537

Address: Post Box 47

Postal code: 02151

City: Espoo

Country (code): FIN

(spelled out): Finland

EC type examination certificate:

EUFI 29-19003175-C1

DESCRIPTION OF THE RECREATIONAL CRAFT

Brand name of the recreational craft

Silver

Model or number

Viper Day Cruiser

Design category

C

Boat type*	03
Hull type*	01
Deck*	02
Construction material*	02
Propulsion*	02
Engine type*	01
Maximum permitted engine power (kW)	221
Length and width of hull (m)	6.72 / 2.42
Draught (m)	approx. 0.445

* Please refer to codes on next page

I declare under my own and sole responsibility that the recreational craft mentioned above complies with all applicable essential requirements as specified on the following page.

Vantaa, 10th of October 2020

Peter Krusberg
Product Development Manager, Silver Boats, Z- series

Boat type:	Deck:
01 sailboat	01 decked
02 inflatable	02 partly decked
03 other: motorboat	03 open:
Hull type:	Propulsion:
01 monohull	01 sails
02 multihull	02 petrol engine
03 other:	03 diesel engine
	04 electrical motor
	05 oars
	06 other:
Construction material:	Engine type:
01 aluminum, aluminum alloys	01 outboard
02 plastic, fibre reinforced plastic	02 inboard
03 steel, steel alloys	03 z or sterndrive
04 wood	04 other:
05 other:	

	General requirements	
	Basic information	EN ISO 8666:2018
A2.1	Vessel identification	ISO 10087:2006
A2.2	Builder's plate	RCD annex I, A 2.2
A2.5	Owner's manual	EN ISO 10240:2004 / A1:2015
	Arrangements and equipment	
A2.3	Protection from falling overboard	EN ISO 15085:2003 / A2:2018
A3.7	Storage of life rafts	RSG Guidelines
A3.8	Exit	EN ISO 9094:2017
A3.9	Anchoring, mooring and towing	EN ISO 15084:2018
A5.7	Navigation lights, shapes and sound signals	1972 COLREG
A5.8	Discharge prevention	EN ISO 8099-1:2018
	Installation requirements	
A5.2	Fuel system	EN ISO 10088:2017, EN ISO 11105:2017
A5.3	Electrical system	EN ISO 10133:2017, EN ISO 13297:2018
A5.4	Steering system	EN ISO 10592:2017
A5.6	Fire protection	EN ISO 9094:2017
	Dimensions	
A3.1	Structure	EN ISO 12215-5:2018, EN ISO 12215-6:2018
	Hydrostatics	
A3.2	Stability and freeboard	EN ISO 12217-1:2017
A3.3	Carrying and floatation capacity	EN ISO 12217-1:2017
A3.6	Manufacturer's recommendation for the maximum load	EN ISO 14946:2001 / AC 2005
A3.4	Openings in hull, deck and superstructure	EN ISO 9093-1:2018, EN ISO 12216:2018
A3.5	Water incursion	EN ISO 15083:2018
	Handling characteristics	
A4	Handling characteristics	EN ISO 11592-1:2016
A2.4	Visibility from the principal steering station	EN ISO 11591:2011

2 Definitions

The warnings and cautions in this manual are defined as follows:

DANGER!	Denotes an extreme hazard that will result in a high probability of death or permanent injury if proper precautions are not taken.
WARNING!	Denotes a hazard that can result in injury or death if proper precautions are not taken.
NOTE!	Denotes a reminder of safe practices or directs attention to unsafe practices which could result in personal injury or damage to the craft or components or the environment.

SI system units are used in this manual. In some cases, other units have been added in brackets. An exception is wind speed, for which the Beaufort scale is used in the Recreational Craft Directive.

3 Warranty

The boat and its factory-installed equipment have a two-year warranty, starting on the first day of use. Please contact your dealer regarding any potential warranty issues. Please remember to provide the WIN code. If possible, please provide a digital photograph of the subject of your claim. This usually speeds up the claims process.

4 Before use

4.1 Registration

Registration regulations vary between different countries. Find out what is required in relation to your own boat.

4.2 Insurance

Boat insurance can compensate damage occurring on water or during transport and lifting. Check who has insurance liability each time when having the boat lifted. Insurance also has an indirect effect on safety at sea: In the event of a serious accident or damage, you must, above all, concentrate on saving people. Insurance companies will be able to give more information about different insurance alternatives. Check who has insurance liability each time when having the boat lifted or transported!

5 Characteristics and use of your boat

5.1 General

This user manual is not intended to be a complete service or repair manual; it simply guides the user on how to use the boat in the proper manner.

5.2 Basic information

Recreational crafts can be constructed according to 4 categories (A, B, C and D) under the Recreational Craft Directive 2013/53/EC. This boat has been constructed according to design category C. The meanings of the various design categories are explained below.

Category A: The boat is built for conditions where wind speed can exceed 8 Beaufort (approx. 21 m/s), and where the significant height of the waves (please refer to note below) can exceed 4 metres. In such circumstances the boats are largely self-sufficient. Category A does not include abnormal conditions such as hurricanes. Such conditions may be encountered on extended voyages, for example when crossing oceans, or in coastal areas where there is an open expanse of sea for several hundred nautical miles off the coast.

Category B: The boat is built for conditions where wind speeds can reach a maximum of 8 Beaufort (approx. 21 m/s), and where the corresponding significant height of the waves (please refer to note below) is 4 metres at most. Such conditions may be encountered on offshore voyages of sufficient length, or on coastal waters when unsheltered from the wind and waves for several dozens of nautical miles. These conditions may also be experienced on inland seas of sufficient size for the wave height to be generated.

Category C: The boat is built for conditions where wind speeds can reach a maximum of 6 Beaufort (approx. 14 m/s), and where the corresponding significant height of the waves (please refer to note below) is 2 metres at most. Such conditions may be encountered on exposed inland waters, in estuaries, and in coastal waters in moderate weather conditions.

Category D: The boat is built for conditions where wind speeds can reach a maximum of 4 Beaufort (approx. 8 m/s), and for corresponding seas (significant wave height does not exceed 0.3 metres, and the height of the greatest waves does not exceed 0.5 metres). Such conditions may be encountered on protected inland waters, and in coastal areas during fine weather conditions.

Note: Significant wave height is a term used in boat design. In practice, significant wave height means the average height of the highest third of all wave heights measured in the waters. If the significant wave height is 2.0 m, the mean height of all waves is roughly 1.2 m.

Maximum recommended load: See *technical specifications*
See also section 5.4 “Loading”.

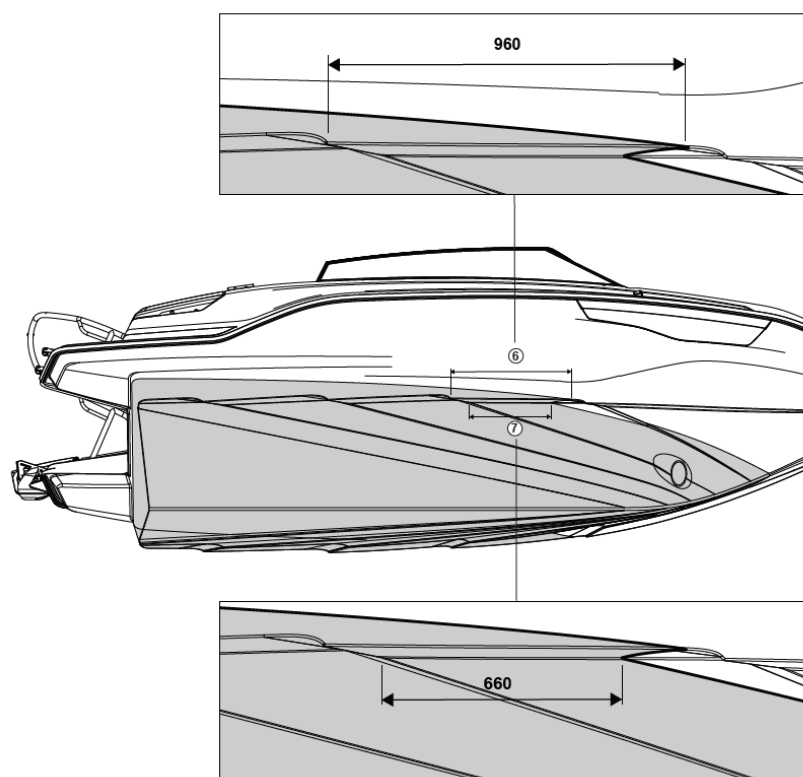
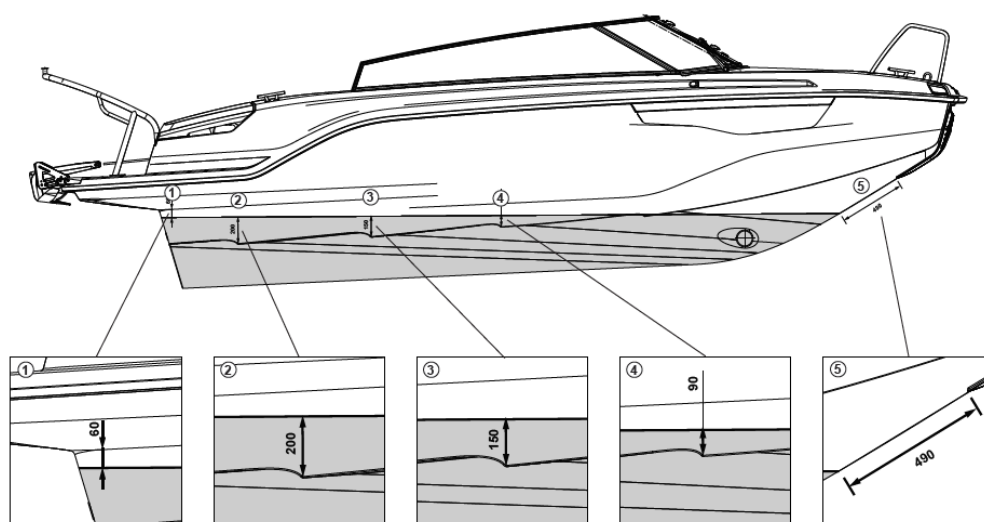
Main dimensions and capacities: See *technical specifications*
Craft length, width, draught, total weight, etc., and tank capacities are shown in the technical specifications.

Builder’s plate:
Part of the aforementioned information is given on the builder’s plate, which is affixed next to the remote control. Supplementary information is provided in the appropriate sections of this manual.

Technical specifications

Model	SILVER VIPER DC
Design category	C
Overall length	6.72 m
Width	2.42 m
Weight without engine, fluids and equipment	approx. 1350 kg
Weight on trailer with largest recommended engine	approx. 1898 kg Includes the boat (approx. 1350 kg), outboard engine 300 hp (313 kg) and the estimated weight of fluids and equipment (235 kg). NOTE! This is not the maximum weight of fluids and equipment.
Weight on trailer with the largest engine that complies with the standard	approx. 1898 kg Includes the boat (approx. 1350 kg) and a 300 hp engine (313 kg) and the estimated weight of fluids and equipment (235 kg). NOTE! This is not the maximum weight of fluids and equipment.
Maximum weight of load / Maximum number of passengers	820 kg 8 persons
Maximum load includes	600 kg / 8 persons (75 kg each) + personal equipment 40 kg + fuel 105 kg + sewage 30 kg and fresh water 30 kg
Maximum load on builder's plate (CE sign)	640 kg Includes passengers 8 x 75 kg = 600g + personal equipment 40 kg = a total of 640 kg
Weight at full load	2568 kg Includes the boat 1350 kg + engine 313 kg + battery 2 x 20 kg + basic equipment 45 kg + personal equipment 40 kg + fuel 105 kg + fresh water 45 kg + sewage 30 kg + passengers 600 kg
Maximum engine power	221 kW / 300 hp
Weight of largest recommended engine	313 kg
Fuel tank capacity	140 litres
Maximum draught at full load, engine up	0.45 m
Maximum height from water line at light load	1.3 m
Construction material	Glass fibre reinforced polyester
Colour code:	RAL 9016
Hydraulic hoses	5.5 m
Maximum speed at boat test	approx. 53 knots

Antifouling limit



5.3 Maximum recommend number of passengers

The boat's maximum recommended number of passengers is 8 persons.

WARNING!

Do not exceed the maximum recommended number of passengers. Regardless of the number of passengers, the total weight of people and equipment must never exceed the maximum recommended load (please refer to Section 5.4, "Loading"). Always remain seated on the boat. All persons on board must remain seated while the boat is moving.

5.4 Loading

The boat's maximum permitted load is 820 kg. This load includes the following weights:

- a) The total weight of passengers 600 kg (the default weight of an adult is assumed to be 75 kg and that of a child 37.5 kg)
- b) Liquids 180 kg (fuel 105 kg, fresh water 45 kg and sewage 30 kg)
- c) Personal equipment (e.g. recreational and overnighting equipment) 40 kg

NOTE!

The maximum permitted load only includes the weights mentioned above.

WARNING!

Never exceed the maximum recommended load when loading the craft. Always load the craft carefully and distribute loads appropriately so that the boat is on an even keel. Heavy equipment should usually be placed in the storage compartment under the aft seat. If the boat is carrying the maximum number of passengers, heavy items should be placed in the bow so that the boat will not be tail-heavy. Always avoid placing heavy items high up.

5.5 Engine and propeller

The maximum engine power for the boat is 300 hp (221 kW). Using a more powerful engine than specified on the CE plate will void the boat's warranty. Follow the dealer's instructions when choosing the propeller for your boat.

5.6 Prevention of water incursion and stability

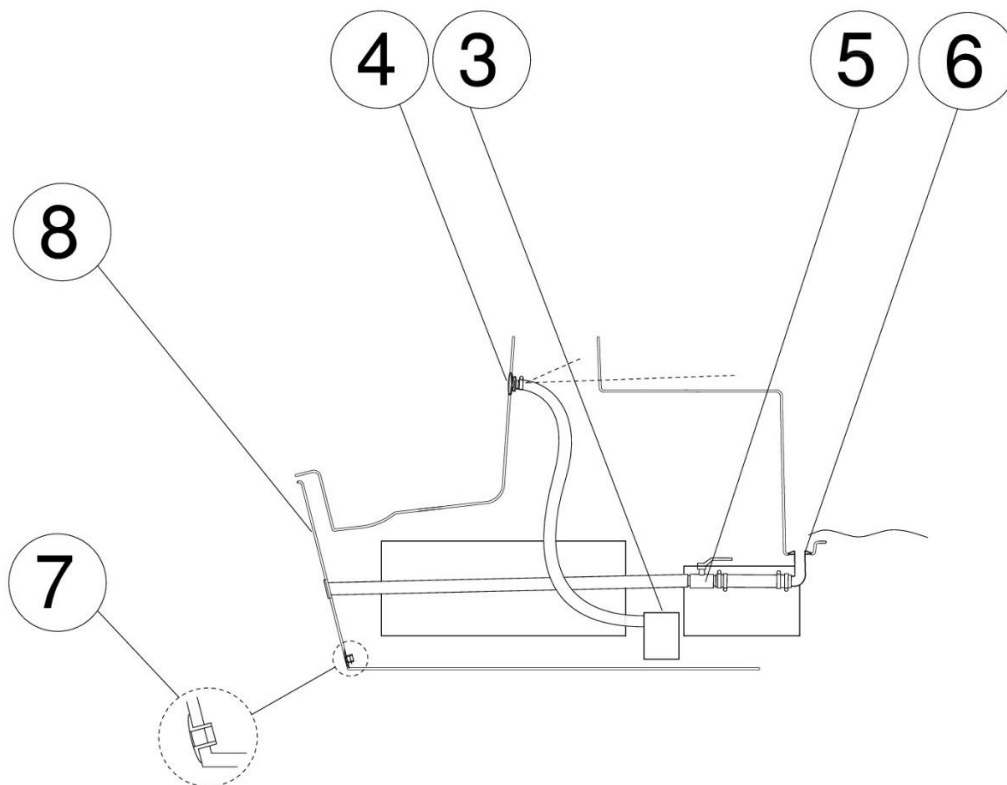
5.6.1 Hull and deck through fittings and closing valves

The boat has a rainwater drainage system, which means that rainwater in the open space of the boat is drained when the boat is on the water. The system also functions when the boat

is out of water, provided that the bow is higher than the stern and closing valve is open. The rainwater drainage valve is located underneath the plywood plate of the middle hatch of the aft sofa. This drain valve is meant to be shut only when at heavy load to prevent potential water incursion. **In other loading conditions the drainage valve should remain open to let rainwater drain from the boat.**

The boat has an electric bilge pump in the bilge (location shown in the picture below). The function of the bilge pump is automatic meaning that it will automatically empty the bilge if there will appear water. The capacity of the electric bilge pump is about 40 l/min. On the right hand of the steering wheel you find the manual switch to turn on the electric bilge for testing/checking the function. In the switch there is a light that will turn on if there is water in the bilge. If the light turns on you should immediately check the bilge by open the inspection hatch in the plywood bottom plate underneath the middle hatch in the aft sofa. If the bilge is empty you can continue boating but if the light turns on again and pump starts to empty the bilge you have to immediately drive to the shore and nearest harbour or landing-stage and thereafter lift up the boat from water to find out the reason to the leakage.

The electric bilge pump can be checked by removing the plywood plate of the middle hatch of the aft sofa.



Rainwater drainage system and bilge pump system

- | | |
|----------------------------------|---|
| 3. Electric bilge pump | 6. Rainwater drainage through fitting |
| 4. Bilge pump hose | 7. Drain plug for bilge |
| 5. Rainwater drainage pipe valve | 8. Engine well drainage through fitting |

The owner of the boat is responsible for ensuring that there is at least one baler or bucket in the boat.

WARNING! The bilge pump system is not intended to cope with a leak caused by running aground or other equivalent damage (hull damage).

SAFETY MEASURE! Regularly check to ensure that there is no debris around suction grid of the bilge pump.

WARNING! Always keep the drainage pipe valve shut when the pipe's inboard end is constantly under water due to heavy loading. The shut-off flap on the transom only prevents water from entering the boat when reversing!

NOTE! Make sure that water can flow unobstructed through the drainage pipe. Debris such as autumn leaves may obstruct the water flow, which can cause the boat to fill with water and sink. The bilge pump system does not work in conditions below 0°C.

NOTE! There is always some condensed water in the bilge. The hull bushings may also allow water to seep through, particularly as the boat ages. Always remember to check the bilge before you leave the boat at quay or buoy, and always before setting off. Have any leaks repaired at an authorised repair shop.

WARNING! The boat's handling properties may become extremely dangerous if there is water in the bilge.

5.6.2 Stability and buoyancy

Please note that stability will be reduced by any weight added high up on the boat. Any change in the distribution of weight on board may significantly affect the stability, trim and performance of your boat. Please remember that large breaking waves always present a serious danger to stability.

5.7 Preventing fires and explosion hazards

5.7.1 Refuelling

Shut off the engine and extinguish any cigarettes before starting to refuel. During refuelling, do not use switches or appliances that can cause a spark.

When refuelling at a service station, do not use a plastic funnel, since it will prevent the tension between the refuelling nozzle and filling vent from being discharged.

Hint: If you are afraid of getting fuel on the synthetic teak deck during refuelling, wet the deck with water. You can also hold a rag in front of the fuel filler to prevent fuel from splashing on the deck.

Always keep a spare can of fuel on board. The anchor boxes at the stern are especially suitable for storing the spare canister as there is no risk of vaporised fuel coming into contact with battery compartments or the electrical system from either of these boxes.

Do not stow any loose items under the aft sofa that could prevent fuel flow to the engine if they shift. Check the fuel hoses annually for wear, especially at through fittings.

Please note that, depending on the trim of the boat or the boat's heeling angle, it might not be possible to use the full capacity of the fuel tank.

If the boat is on trailer behind a car when refuelling, please note that the fuel tank ventilation does not work efficiently if the bow of the boat is downwards.

WARNING! Vaporised fuel is highly explosive. Observe these instructions and the utmost caution during refuelling. The smell of fuel always means that there is vaporised fuel on your boat.

5.7.2 Other fuel-operated systems (diesel heater optional accessory)

The diesel-operated heater (optional accessory) has its own user manual and the operation is not described in this manual. The fuel tank for the heater is located underneath the aft sofa. Turn off the heater when refuelling the diesel tank. When handling diesel, do not use switches or appliances that can cause a spark. Always clean any spilled fuel immediately.

NOTE! If the boat is equipped with a heater (optional accessory), do not block the exhaust grates when the heater is switched on. This will cause the heater to overheat and engage the overheat protector.

5.7.3 Fire protection

The boat is equipped with a portable 2 kg fire extinguisher class 8A 68 B, which is the minimum power requirement for extinguishers. For the extinguisher to remain reliable, it should be inspected annually by an authorised inspector. In the event that the fire extinguisher is replaced, the capacity of the new one must be at least equivalent to the old.

The fire extinguisher is in the storage compartment behind the driver.

Ensure that firefighting equipment is readily accessible even when the boat is loaded. Inform members of the crew about the location and operation of fire-fighting equipment. The fire extinguisher is located in the storage compartment behind the driver in the open deck space. There is a red extinguisher sign outside sofa showing the location of the extinguisher.

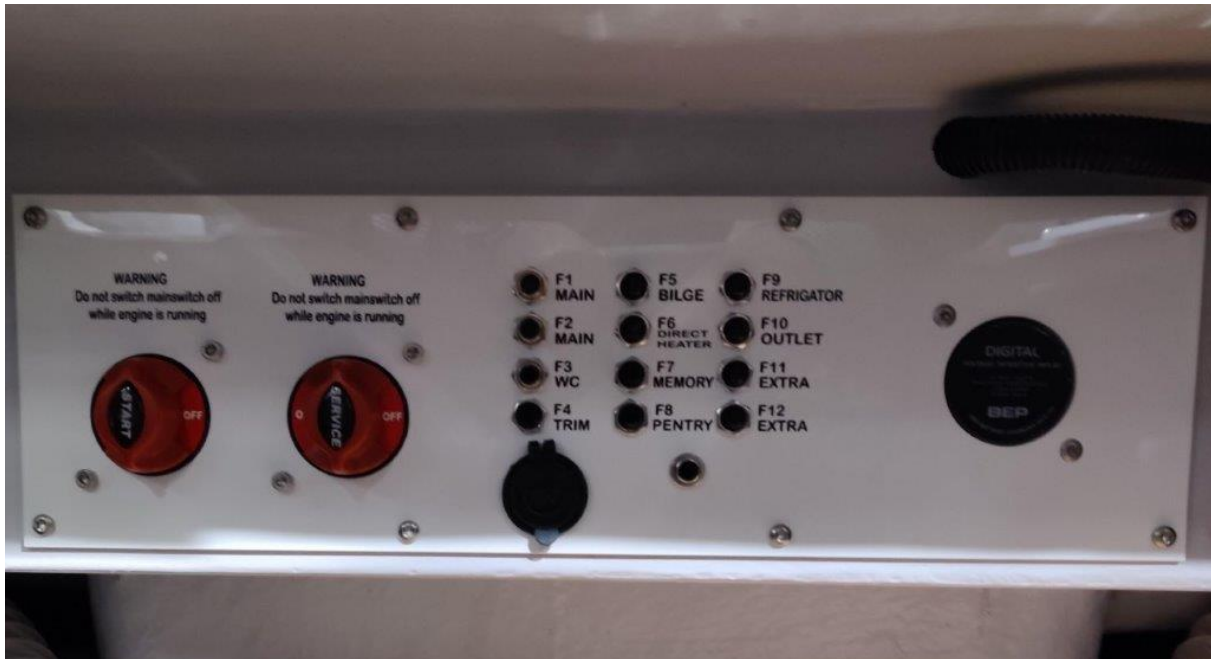
Remember:

- Never hinder access to safety equipment, for instance the switches to the electric system.
- Never hinder access to fire extinguishers located in a box.
- Never leave the boat unsupervised while the cooker or heater is on.
- Never make alterations to any of the boat's systems (especially the electricity or the fuel systems) or allow an unqualified person to make alterations to any of the boat's systems.
- Never refill a fuel tank when the boat's engine is running, or the cooker or heater is on.
- Never smoke while handling fuel or gas.

5.8 Main power switches and circuit breakers

Operation of the main power switches:

Switch the power off from both main switches when leaving the boat, and always switch both switches on when using it.



Electric circuit fuses are located to the left of main power switch(es). Fuse sizes are presented in the electrical diagram. Do not change the circuit breaker amperages or install any components that exceed the nominal amperage of the circuit in the electric system.

Remember to always use both main switches when switching the power off or on. Remember also to switch off the main power switch before making any electrical installations.

All fuses are automatic circuit breakers. In the event of a fault current, the circuit breaker will trip.

You can reset the circuit breaker by pushing it back in. If the circuit breaker immediately trips again, there is a short-circuit somewhere in the electrical system or in a component. You must leave repairing the boat's electrical system to a professional electrician.

NOTE! Remember also to switch off the main power switch before making any electrical installations.

NOTE! Never switch off the main switch while the engine is running! It can cause serious damage to the engine's electric system.

- NOTE!** Do not perform electric installations (such as changing lamps) when the power is on. Leave any larger installations to professionals.
- NOTE!** When connecting or disconnecting the battery, do not touch both terminals simultaneously with metal objects.

5.9 Operation

If this is your first boat or a boat type new to you, take someone with experience of a similar boat with you the first few times you operate it.

5.9.1 Controls

You will quickly learn how to control your boat, but changing weather conditions, such as wind and waves, will always present new challenges for the driver. The remote control combines the functions of throttle, forward and reverse gears, and the adjusting of the engine trim angle. The boat is equipped with hydraulic steering.

Centre console switches



Port side of the steering wheel:

BOW LT = Bow light (optional accessory), WIPER BB = Wiper, port side, WIPER SB = Wiper, starboard

DEFROSTER = Defroster, NAV LIGHTS = Navigation lights, BILGE = Bilge pump

5.9.2 Emergency switch

The emergency switch is a device that you have to attached to the remote control or to the ignition key panel (depending on what outboard motor brand). The other end you should attach around your knee. The emergency switch automatically switches off the engine when detached from the remote control. It is very important that the boat will come to a halt if the driver, for whatever reason, loses his/her balance and is flung from the helm.

NOTE! Never take control of the boat without having attached the emergency switch to yourself. If you attach the emergency switch to your arm, do not steer the boat with that arm, because the chain may be tangled in the steering wheel during tight turns.

NOTE! The engine will not start if the emergency switch is not attached to the switch on the remote control.

DANGER! A rotating propeller presents a life-threatening danger to a swimmer or a person who has fallen overboard. Always use the emergency switch to turn off the engine when a swimmer or water skier is about to re-enter the boat from the water.

5.9.3 Gearshift and throttle

The engine is put into gear by pushing the button on the gear/throttle handle upwards with your fingers and by pushing or pulling the gear/throttle lever forward or backward, depending on the direction in which you are planning to go. When the engine is in gear, you can adjust the boat's speed using the same gear/throttle lever.

When the boat is travelling forward slowly, you can use the reverse gear for braking when approaching the dock, for instance. Shifting into reverse must not be done if the boat is travelling at higher speeds, because it will damage the engine.

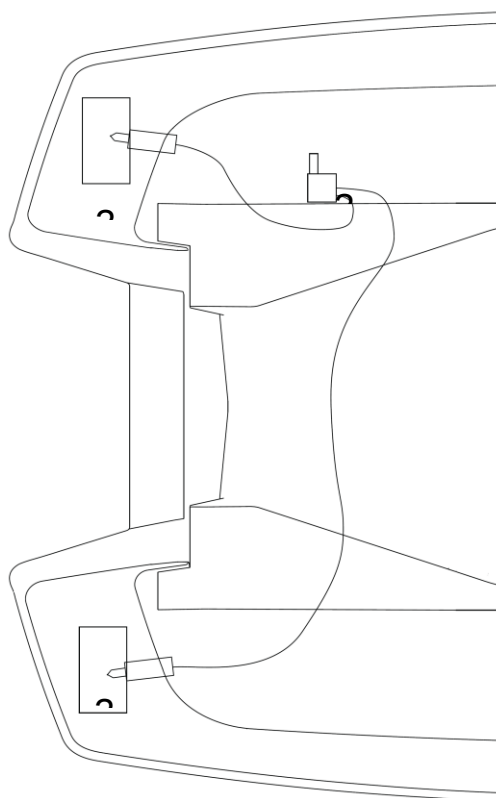
5.9.4 Adjusting the trim angle

These are the main rules when adjusting the trim angle:

- When bringing the boat to plane, keep the 'bow down' position.
- When the boat is planing and seas are calm, keep lifting the bow until you can feel that both the engine and the boat move very easily. In calm waters, the engine should normally be trimmed up at least 3 scale marks on the trim indicator on the revolution counter. If the engine is trimmed up too much, the speed of the boat will be reduced. If the boat is trimmed too low, the boat will run slowly, and the engine will run heavily. To achieve good fuel economy, it is important to drive the boat with the right engine trim angle.
- In heavy head seas, lower the bow to allow it to slice through the waves better, thus providing a smoother ride.
- In following seas, raise the bow to avoid 'diving' into the waves.

WARNING!

Do not drive the boat at high speeds with the engine trimmed up (bow up), as there is a risk of sudden heeling when the propeller hits the water again after a flight in heavy waves. Likewise, do not drive at high speed with the engine completely trimmed down (bow down) since this can cause the boat to pitch unexpectedly when the bow hits the water. The boat may become unstable when turning if the bow is too low.



Trim flap system

1. Control panel at helms man position
2. Distribution unit
3. Trim flaps

WARNING!

If you use the trims manually, adjust the trim controllers carefully at high speeds. They will change the behaviour of the boat radically.

WARNING!

Waves reduce manoeuvrability and make the boat heel. Accordingly, reduce speed when encountering heavier seas.

5.9.5 Starting the engine

1. Switch the power on using the main power switches.
2. Lower the engine to the driving position by pressing the Power Trim button on the gear/throttle handle.
3. Check that the gear/throttle handle is in the neutral position and that the emergency switch is attached to the bottom of the remote control.
4. Switch on the current, using the start key, without starting the engine and wait a few seconds for the warning lights to light up.
5. Start the engine by turning the ignition key clockwise until the engine starts. If everything is in order, the engine should start within 1-2 seconds. If the engine does not start, you should not try to start it for more than 10 seconds at a time.
6. After the engine has started, let it idle for a few minutes before setting off. (Please refer to the engine manual!)

For more detailed information, please refer to the engine manual.

5.9.6 Driving

It is easy to drive when the weather is fine and the sea is calm. However, always remember to keep an adequate lookout. In order to maintain the best possible visibility from the driver's position, you should do this:

- Ensure that passengers do not restrict your visibility.
- Do not drive near planing speed for long periods, as the bow comes up and reduces visibility.
- When visibility is poor, look over the windshield.
- Remember to also keep a lookout behind you, particularly on shipping lanes.

Use navigation lights in darkness.

Always adjust your speed to prevailing conditions and the environment. Take into account the following:

- waves (also consult the passengers on what is a comfortable speed);
- your own bow wake (greatest at planing speed, smallest at speeds under 5 knots);
- visibility (islands, fog, rain, driving against the sun);
- familiarity with the route (time required for navigation);
- width of the route (other traffic, noise and bow wake near shore).
- Make sure to always maintain a sufficient distance to avoid collision. The distance must be sufficient to stop the boat or to take evasive action.

When running at low speed, a planing boat's directional stability is poorer than at higher speeds. So be careful in narrow passages and, particularly, when meeting other boats.

You must learn the rules of traffic on sea lanes and follow the international regulations on how to avoid collisions at sea, COLREG. Navigate with care and use new or updated nautical charts.

The running position of the boat greatly affects its handling characteristics and fuel consumption as well as visibility from the driver's position. You can affect the running position by:

- placing the load properly – the general rule being that you should place as little weight in the bow as possible; and
- adjusting the trim angle.

The combination of the right running position with the right speed also makes driving in rough seas safer and more comfortable.

WARNING!

A high speed and sudden manoeuvring in rough seas can lead to loss of control over the boat and large heeling angles.

NOTE!

The boat is not designed to jump waves. The warranty does not cover damage caused by flight. It is possible to check whether the engine has been airborne from the engine history on the repair shop's computer.

5.9.7 Approaching and leaving the dock

Practise boat manoeuvring skills where there is ample space to learn how to approach a dock before entering a crowded marina.

A very gentle application of throttle does not generate sufficient steering power. Sharp but short throttle applications enable efficient steering movements when approaching the dock.

Ensure that everyone on board who does not have to stand up is seated when you are approaching the dock. Sudden steering movements may cause the boat to heel and injure somebody.

Before docking, prepare the mooring lines at stern and bow. Approach the dock bow first at a slight angle. Just before touching the dock, steer into it and shift into reverse. Apply throttle quickly and sharply. The boat will stop and turn parallel to the dock. If possible, make the approach into the wind or current, whichever is the strongest. This makes departing easier, as the wind or current will push the bow out from the dock. The easiest way to depart is to first push the stern as far away from the dock as possible, and then slowly reverse away from the dock into open water.

The propeller is designed to have the best grip in forward gear. Therefore, propeller performance is weaker in reverse. The steering response is also not as good in reverse as in forward gear.

- WARNING!** The boat is fast. If you are planing, it takes time to come to a stop. Slowdown in time before anchoring, beaching or docking. Learn to estimate the distance the boat needs to stop. Remember that steering control is poor if there is no traction.
- WARNING!** Do not try to stop the boat with your hands, and do not put your arm or foot between the boat and the dock, the shore or another vessel! Practise beaching and docking under favourable conditions! Use moderate but firm engine power!
- NOTE!** When securing your boat, take into consideration the possibility of changes in wind direction, rising or sinking of the water level, bow wakes, etc. You can get more information from your insurance company, for example.

5.9.8 Using the canopy

The canopy is designed to withstand a maximum speed of 30 knots at sea, and 50 km/h in road transport. All press studs must be properly fastened when using the canopy. The canopy's design allows raising just the front part. We recommend that you remove the sides and back of the canopy to make it fit into the canopy box more easily. Then, fold the upper parts of the sides entirely on top of the roof, so that no fabric remains where the corners of the canopy supports are. Finally, roll up the roof part along with the sides folded on top of it, and lower the canopy into the canopy box.

NOTE! The boat should not be driven in rain with the canopy down. The equipment in the open deck space is not water-tight and must be protected from the rain. A canopy or a mooring cover must be used when docked in port.

NOTE! The windscreen and canopy do not necessarily form a watertight seal.
Water may enter the boat between the canopy and windshield when the canopy is up.

5.9.9 Windshield door

The windshield door must always be kept shut and locked when the boat is moving. The door has not been designed to be used as a railing when getting in or out of the boat. The door must be held on to as it is opened until it is attached to the stopper. Likewise, it must be held on to until it is closed. In other words, do not let go of the door when opening or closing it.

WARNING! The door must be kept closed in rough seas or strong or gusty winds, since it may slam shut. The door is heavy and may cause injury if it strikes someone when slamming shut.

WARNING! Large waves or gusts of wind may slam the door shut also when the boat is stationary. It is thus recommended to always keep the door closed when the passage through the bow deck is not being used.

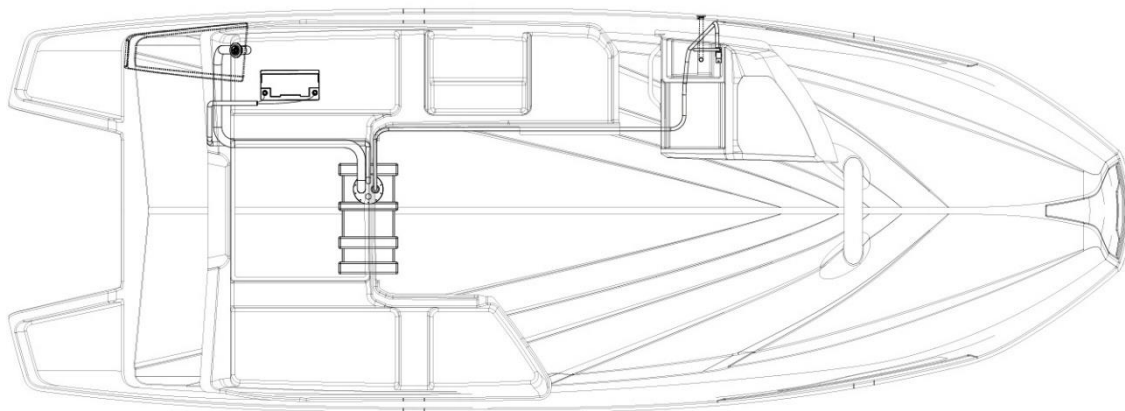
5.9.10 Stairs, sharp windshield corner and cabin door

Great care must be taken when using the stairs, particularly when the cabin door is partly open.

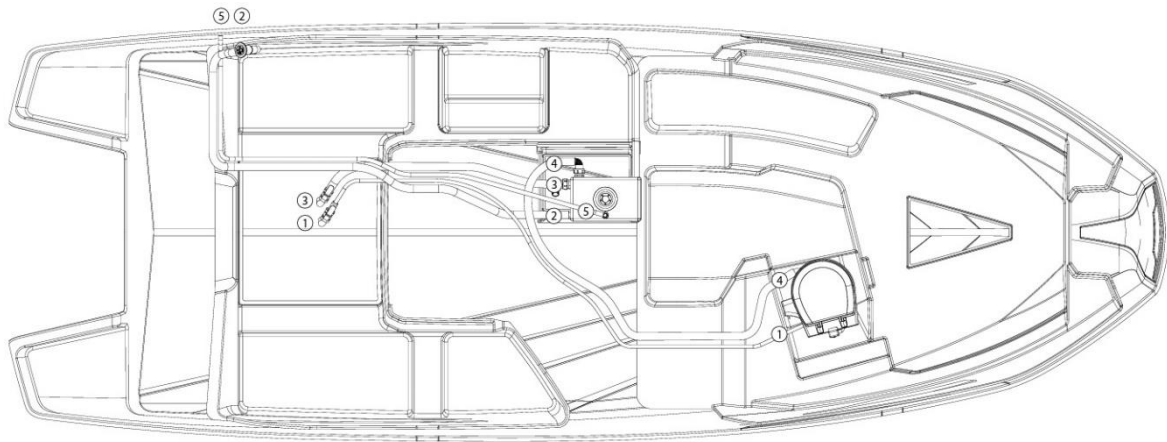
WARNING! The bow anchor box hatch is equipped with a rubber band that holds the hatch closed while driving.

WARNING! It is not recommended that children do not use the hatch, as their fingers or toes could get caught in it.

5.9.11 Fresh water system



5.9.12 Toilet system



5.10 Proper use – other recommendations and guidelines

5.10.1 Man overboard

It is always a serious situation when someone falls overboard. Rescue procedures should be practised in advance during good weather, because it is too late for practice when someone has actually fallen into the water.

It is always easiest to help a person climb back on board at the stern of the boat. A rope loop attached to the boat helps lifting. The boat's swim ladder extends 30 cm into the water. If a child has fallen overboard, an adult carrying an extra life-saving device or a fender must always jump in after the child; however, someone must always remain on board the boat.

It is very important to maintain visual and verbal contact with a person that has fallen overboard.

DANGER!

A rotating propeller presents a life-threatening danger to a swimmer or a person who has fallen overboard. Always use the emergency switch to turn off the engine when a swimmer or water skier is about to re-enter the boat from the water.

Potential life-raft, the recommended location is under the back seat

5.10.2 Securing loose equipment

Stow all heavy equipment, such as anchors, and secure them firmly before setting off.

5.10.3 Bow cabin sliding door

NOTE!

The sliding door of the cabin must be kept closed while driving.

5.10.4 Respect for the environment

Conservation of the environment is a matter of honour for every boater. Therefore, you should avoid:

- fuel and oil leaks;
- emptying rubbish and waste into the water or on the shore;
- letting detergents or solvents get into the water;
- loud noise both on the water and at the marina; and
- producing an unnecessarily high bow wake, especially in narrow passages and shallow waters.

Service the engine well and run it at the most economical speed, which will also keep exhaust emissions low.

Please also consider other local environmental legislation and regulations. In Finland, under 'everyman's right' anyone may move around on private land, except in the vicinity of residential buildings, as long as they cause no damage or inconvenience. 'Everyman's right' also allows movement and temporary anchorages on privately owned waters, swimming and going on shore at uninhabited locations, unless landing is specifically prohibited by a notice from the authorities. It is not allowed to anchor next to a shoreline where there are one or more residences. Docking at a private dock owned by someone else or landing on a shore where there are residences is also not allowed without permission.

Please make sure to familiarise yourself with the International Convention for the Prevention of Pollution From Ships (MARPOL) and respect it to the greatest possible extent.

It is allowed to camp out on islands as long as no damage is caused to the landowner. It is not allowed to camp out next to residential buildings or in or near cultivated fields. You may not light a campfire unless you have the landowner's permission. Everyman's right allows the picking of naturally growing berries and mushrooms without damaging trees or the environment in general. Please check the regulations concerning movement in the natural environment in your area.

5.10.5 Anchoring and mooring the boat

Always moor your boat carefully, even in sheltered places, because conditions can change rapidly. Mooring lines should be equipped with absorbers to dampen any jolts. Please refer to the section Towing for the location of bollards. To prevent abrasion, use fenders that are large enough.

The forward endurance of the bow bollards is at least 23 kN, or c. 2,300 kg. The backward endurance of the stern bollards is at least 16.0 kN, or c. 1,600 kg.

The minimum anchor weight for the boat is 5 kg. Drop anchor far enough from shore. A reasonable grip is attained if the anchor line length is 4–5 times the water depth.

WARNING!

Do not try to stop the boat with your hands, and do not put your arm or foot between the boat and the dock, the shore or another vessel!

NOTE!

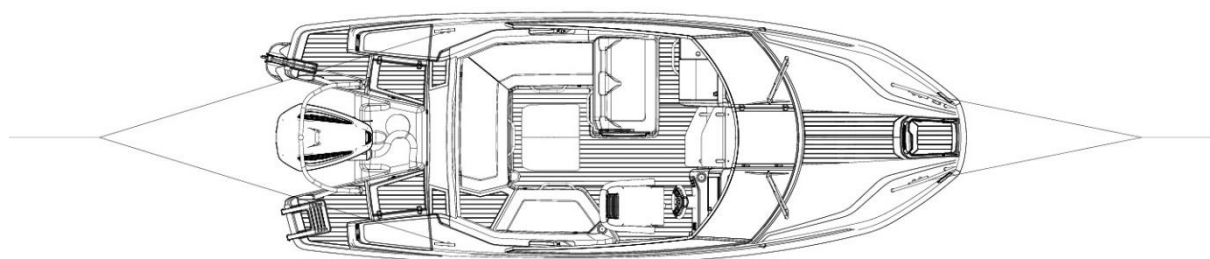
When securing your boat, take into consideration the possibility of changes in wind direction, rising or sinking of the water level, bow wakes, etc. You can get more information from your insurance company, for example.

5.10.6 Towing

When towing another boat, use a floating line that is strong enough for the task. Begin towing slowly, avoid jerks, and do not overload the engine.

The owner of the boat should consider the measures necessary for securing the boat's towrope.

If you are towing, or if your boat has to be towed, attach the towline to the bow or stern bollards as per the following image.

**WARNING!**

When towing, the towline is under high tension. If it should break, the end that snaps off may lash back fast enough to cause serious injury or death. Always use a thick enough line and keep to one side of the towline.

NOTE!

When towing another boat or being towed, always drive at low speed. If the boat has a displacement hull, never exceed hull speed while towing.

NOTE!

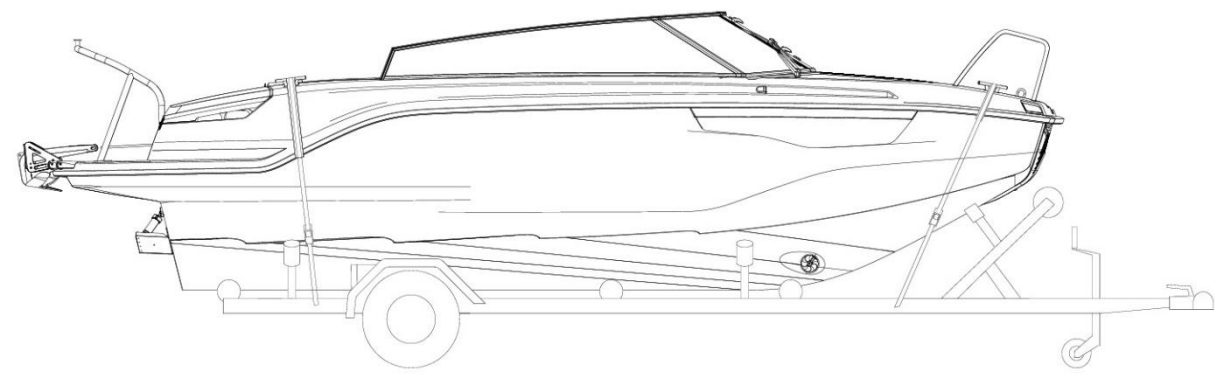
The towline should always be fastened so that it can be unfastened under load.

5.10.7 Trailer transport

Weight data for trailer transport may be found in the technical specifications. The trailer's keel supports should bear most of the weight of the boat. Adjust the side supports so that the boat will not rock sideways. For more information, please turn to your dealer.

Clean the supports of sand and dirt so that they will not scratch the bottom of the boat. Double-check that the trailer is securely coupled to the trailer tow hitch!

The place for lifting the boat out of the water should be sheltered, and the ramp should extend deep enough into the water. Reverse the trailer so deep into the water that the rearmost keel support is just above the water. Drive the boat carefully towards the rearmost keel support. Fasten the hoist cable to the towing eye and reel the boat up onto the trailer, making sure that the boat remains straight on the trailer's centre line. Remember to trim up the engine before reeling the boat onto the trailer so that it will not hit the bottom.



Tie the boat properly before beginning transport. The sling ropes at the bow should be directed down and back, and the sling ropes at stern should be directed down and front. Do not leave any loose equipment or extra load on the boat when it is being transported. Remove the seat cushions and close all hatches properly.

The engine should be in the driving position during transport. However, ensure that there remains adequate clearance. If the clearance is not sufficient in this position, you can transport the engine raised. In this case, the engine must be supported with a suitable support to protect the transom.

If the boat is kept on the trailer between transports, you must loosen the sling ropes for the duration and tighten them before the next transport.

NOTE!

The trailer should be slightly front-weighted. Make sure that the boat is fastened tight enough to the trailer and that the weight of the boat is divided equally between side supports. If the boat swings against a side support during transport, it may sustain hull damage.

When letting the boat down from the trailer, remember to fasten the bow rope to the boat beforehand so that you can release the cable/rope from the trailer hook as soon as the boat is in the water. Be careful with the winch handle!

5.10.8 Docking

The storage cradle should be sufficiently steady and suitable for this particular boat and engine combination. A sturdy plank (2x4"), should be placed between the "V" trestles to

support the keel and to bear most of the weight of the boat. The boat must not rest on the side supports. The side supports should not be placed at the corners on the bottom, and point loads should be avoided. The supporting structures should be strong, particularly near the transom, to support the added weight of the engine.

Only use reputable lifting companies or boat yards with sufficient lifting capacity.

When the boat is being lifted, the lines must be placed under the boat and the boat must remain horizontal during lifting.

NOTE! Do not lift the boat by its bollards.

DANGER! Never stand under a boat that is suspended from a crane.

6 Servicing and maintenance

Keep your boat and its equipment clean and tidy. This increases comfort and safety on board, and also the boat's resale value.

Familiarise yourself with the service procedures shown in the engine manual (see annex). Have your engine serviced according to the instructions in the manual.

6.1 Washing and waxing the boat

Normally it is sufficient to just wash and wax the deck and sides. Special boat cleaning agents are most suitable for the purpose. Use mild detergents. Do not use strong solvents (pH value must not exceed 11); they can cause glossy reinforced plastic surfaces to fade. Mildly abrasive polishes can be used to remove chafes and embedded dirt from the deck. Fibreglass surfaces can be washed with a pressure washer.

Useful tip: When the boat has been washed with tap water, a thin chalk-like layer of lime and minerals will remain on the boat's surface after it has dried. The problem can be eliminated by adding a few drops of pine oil soap into a bucket of rinsing water, which will soften it.

Useful tip: Water and lime stains on stainless steel rails can be removed using Lemon Pledge furniture spray. Your railings will shine like the day they came off the assembly line.

Useful tip: If the boat's ropes smell bad after the season, immerse them for a couple of hours in a bucket of water with a bottle of apple vinegar and a splash of fabric conditioner added. Allow the lines to dry properly, and they will be as good as new.

6.2 Care instructions for seat cushions

Always use the canopy or harbour cover when it is raining to protect the open deck space and seat cushions. Although the seat cushions are made of water-resistant material, water can get in through their seams. If the cushions remain damp for any length of time, they may get mouldy and be ruined. If the mattresses get wet, the fabric can be removed by unzipping the mattress and dried in the sun, at room temperature or in a sauna (50°C). The warranty does not cover cushions spoilt by rain or damp.

NOTE! To keep the boat's seat cushions in good condition over the winter, they should be stored in a dry, well-ventilated space.

NOTE! Wet cushions should not be placed in storage, because they gather mould easily.

The press studs of the seat cushions should be sprayed with silicon spray every now and then, otherwise they may become so tight that the fabric will tear when trying to open them. The warranty does not cover ripped seat cushions. Use very little silicon spray at a time in order not to stain the cushions.

6.3 Care instructions for the canopy

Store the canopy over winter in a dry and well-ventilated place. The warranty does not cover torn or mouldy canopies.

6.4 Care instructions for the windshield

The boat's windscreen is made of tempered glass and can be cleaned with ordinary glass cleaners.

Useful tip: When wiping the boat's windshield dry after cleaning, avoid using circular motions. This can leave circular smudges on the windshield that become visible in sunlight, impeding visibility. Wipe off any streaks with dry newspaper or cotton cloth using first horizontal, then vertical motions. Repeat this a few times and you'll bring the windshield to a brilliant shine.

6.5 Care instructions for the stainless steel components

To keep the boat's stainless steel parts, such as rails, handles and bollards, shining as good as new, you should keep the parts clean and waxed. The edges of the mounting flanges of the rails should also be cleaned. Any dirt that remains under the edge of the flange will begin to look like rust. In regular use (i.e. no damage), the parts should be cleaned and waxed at least

twice every summer. Rail maintenance should also be performed when the boat is put into winter storage.

6.6 Care instructions for the steering system

The hydraulic steering does not require maintenance under normal circumstances. If the steering starts to feel loose, there is a leak somewhere in the system. Leaks must be repaired immediately!

WARNING! A hydraulic steering system that has a leak or trapped air in the hoses is extremely dangerous.

6.7 Care instructions for electrical components

Electrical components like main switches, other switches and couplings do not normally need to be serviced if the boat is stored in a dry and well-ventilated place for the winter. If, however, you wish to protect electrical components against oxidation, the best way to do it is by spraying them every now and then with a moisture repellent antioxidant.

6.8 Minor superficial repairs

You can repair minor surface damage to the boat's hull or deck yourself. However, achieving a neat, unnoticeable repair requires a considerable amount of skill:

1. Protect the area around the damage with tape.
2. Bevel the edges of the damaged area and clean with acetone.
3. If the damage is deeper than 2 mm, it is advisable to smooth it with an appropriate polyfiller before painting.
4. Mix topcoat with 1.5-2 % hardener.
5. Fill the repair with more topcoat than needed, so that its surface remains slightly proud of the surrounding area.
6. Carefully put tape over the repair.
7. After the topcoat has hardened, remove the tape and sand the repair using 600 and 1200 paper applying water.
8. Buff using abrasive paste and wax.

The colours used on this boat are specified in the *technical specifications*. One point to consider is that a paint called *gelcoat* has been used in manufacturing the boat, but the surface is always repaired with a paint called *topcoat*. Gelcoat paint does not harden without a mould surface, whereas paraffin has been added to topcoat to allow it to harden.

NOTE! Some post-delivery installations and alteration work may cause damage to the structure of the boat or impair safety if not

performed correctly. Please contact the dealer if you are planning any modifications.

7 Winter storage

Preparing your boat for winter storage is an annual routine. Have your boat lifted in good time before the water freezes. Your boat is not designed for use in ice and it is not meant to be used in temperatures below zero (for example, the rainwater drainage system will freeze up). It is advisable to perform all maintenance, repair and inspection procedures in connection with placing the boat in winter storage.

Familiarise yourself with the service procedures shown in the engine manual. We recommend that you leave them to an authorised service agent. Do not forget to service the remote control and steering system. Make sure to perform their maintenance according to their separate instructions and manuals.

7.1 Measures before winter storage

Wash the bottom of the boat immediately after the boat has been lifted. Algae and slime will come off easier if they are not left to dry. Empty the engine of its cooling water according to the manual.

Give the engine and other equipment their winter servicing, following their separate manuals. If your boat is stored outside or in a humid place over the winter, empty it of textiles and other equipment that may corrode or become mouldy in damp conditions. Wash the ropes in fresh water. Replace any worn ropes. Leave through fitting valves open. Remove the drain plug for the winter.

Empty the septic tank and the freshwater tank of the boat. Pour two litres of a mixture that contains 50 % ethylene glycol and 50 % water into the toilet and press the flush button for about two seconds.

Check the condition of the hull and rub down any scrapes to let possible moisture inside the laminate dry. Repair any damage in the spring before launching the boat.

Remove all food from the boat and wipe all the surfaces on which food has been handled with a disinfectant. This will prevent the formation of mould.

Always cover your boat so that snow cannot gather inside. Always make sure, however, that it is adequately ventilated. A winter storage cover is available as an optional accessory for your boat.

7.2 Measures before launching the boat

Repair any damage to the gelcoat surface according to section 6.10.

In sea areas, antifouling paint should be used to prevent the hull from becoming covered with vegetation. Fouling of the bottom and especially the propeller increases fuel consumption significantly. However, if the boat is anchored at the inlet of a stream or in a land-locked lake, or if it is lifted out of the water at least once every two weeks, it is normally not necessary to use antifouling paint. Carefully follow the paint manufacturer's instructions when applying the paint. When sanding old antifouling paint, remember that the dust is toxic.

Antifouling paint is not necessary in fresh water (lake areas). We nevertheless recommend using an epoxy primer if the boat will be in the water for several months each year. Fresh water, and warm fresh water in particular, is more readily absorbed by the laminate than sea water.

NOTE! Do not paint over the zinc anodes or the piston rods of hydraulic trim tabs. Do not apply paints containing copper on aluminium parts. Remember to follow the paint manufacturer's instructions.

Useful tip: Do not throw away a used paint brush. A dried and hardened paint brush that has been used for antifouling paint can be reused if you first soak it for a couple of hours in a mix of 2 litres of hot water, 100 ml of vinegar, and 50 ml of baking powder.

Perform the necessary service procedures required for the engine according to the engine manual. Check the functioning of electric equipment and remove any oxidation from fuse connectors etc.

Remember that petrol goes stale over time, and you must always start the engine with fresh petrol in the spring.

When the boat has been launched you should open all valves in the through fittings (bushings) and check to ensure that there are no leaking hoses or connectors. The locations of through fittings are shown in section 5. Bring your safety equipment back on board before setting out.

8 Layout

8.1 General lay-out

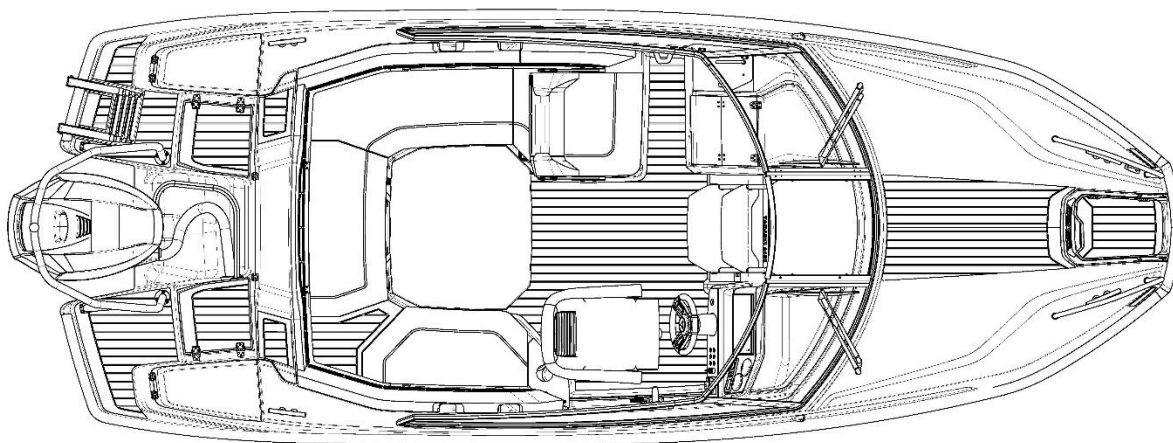


Image: General lay-out from above

WARNING!

Handle the boat's hatches with care and watch your fingers and toes. **Please pay particular attention to the bow anchor box hatch, which is equipped with an elastic band that holds the hatch closed while driving.**

WARNING!

It is not recommended that children do not use the bow anchor box hatch, as their fingers or toes could get caught in it.

8.2 Fuel system

The boat is equipped with a built-in fuel tank. A fuel filter is installed in the fuel line, also functioning as a water separator. The filter must be changed at least once a year. When a new or removed filter has been mounted, the fuel line must be filled with a ball pump before starting the engine.

NOTE!

The condition of the fuel hoses must be inspected annually, and every effort should be made to prevent damage to them. Damaged fuel hoses must be replaced. If you replace fuel hoses, make sure the new hoses have an ISO 7840 label.

The refill cap is situated under the anchor box hatch on the starboard (right) side in the stern. The location of the fuel tank refill cap is marked on the deck by the  symbol.

The cap of the fuel tank contains the text GAS, PETROL or FUEL, which refers to petrol 95E or 98E (recommendation).

8.3 Steering system

The boat is equipped with hydraulic steering. With hydraulic steering, the steering wheel's position changes constantly, which is why the boat is equipped with a symmetrical steering wheel.

The hydraulic steering does not require maintenance under normal circumstances. If the steering starts to feel loose, there is a leak somewhere in the system. Leaks must be repaired immediately!

NOTE! If you replace any component in the steering system, please note that all components must conform to the ISO 10592 standard and bear the CE mark.

WARNING! A hydraulic steering system that has a leak or trapped air in the hoses is extremely dangerous.

8.4 Electrical system

The electrical system of the boat contains the following main components:

1. Starter battery and operation battery
2. Wire harness
3. Main switch panel with main switches and 13 circuit breakers
4. Cabin fuse panel with 9 circuit breakers
5. 6 switches in the panel below the wheel
6. 1 USB output in cabin
7. 1 USB output in centre console
8. Navigation lights (sides and mast)
9. Headlights/searchlights (optional accessories)
10. Trim flap system (optional accessory)
11. 2 windshield wipers (port side optional)
12. Cabin light
13. Defroster for driver
14. Toilet system
15. Refrigerator (optional accessory)
16. Radio (optional accessory)
17. Bow thruster (optional accessory)
18. Anchor winch, stern or bow (optional accessory)

In addition, the engine is an essential part of the boat's electrical system; it both generates and consumes power.



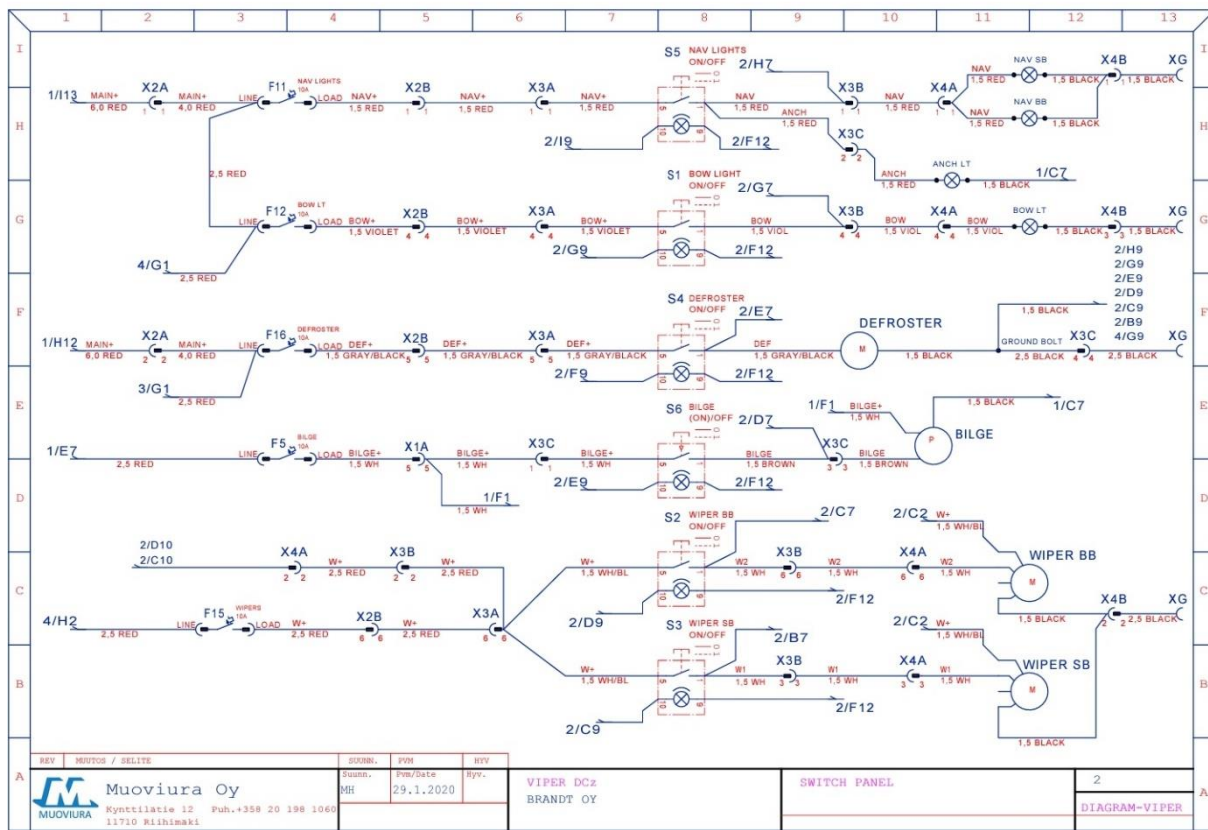
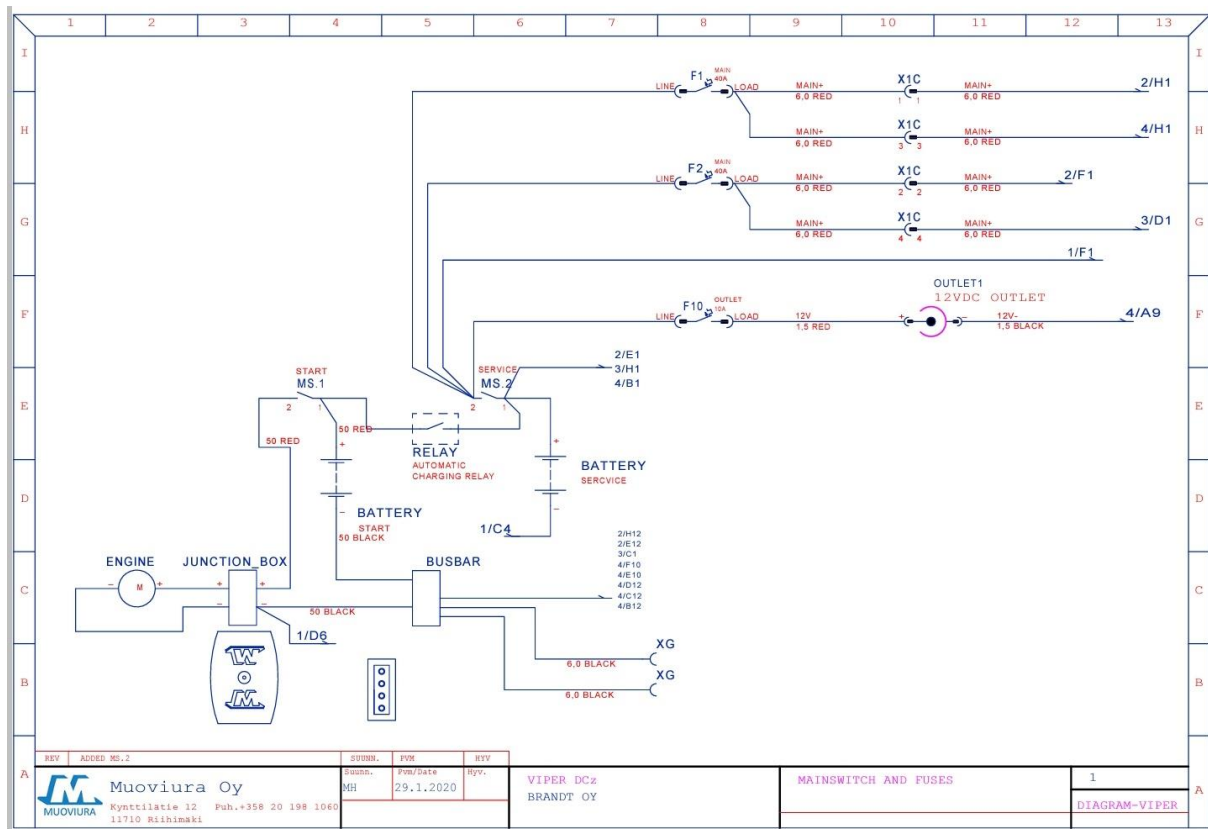
If you connect or disconnect any batteries, take care not to touch both battery terminals with a metal object at the same time.

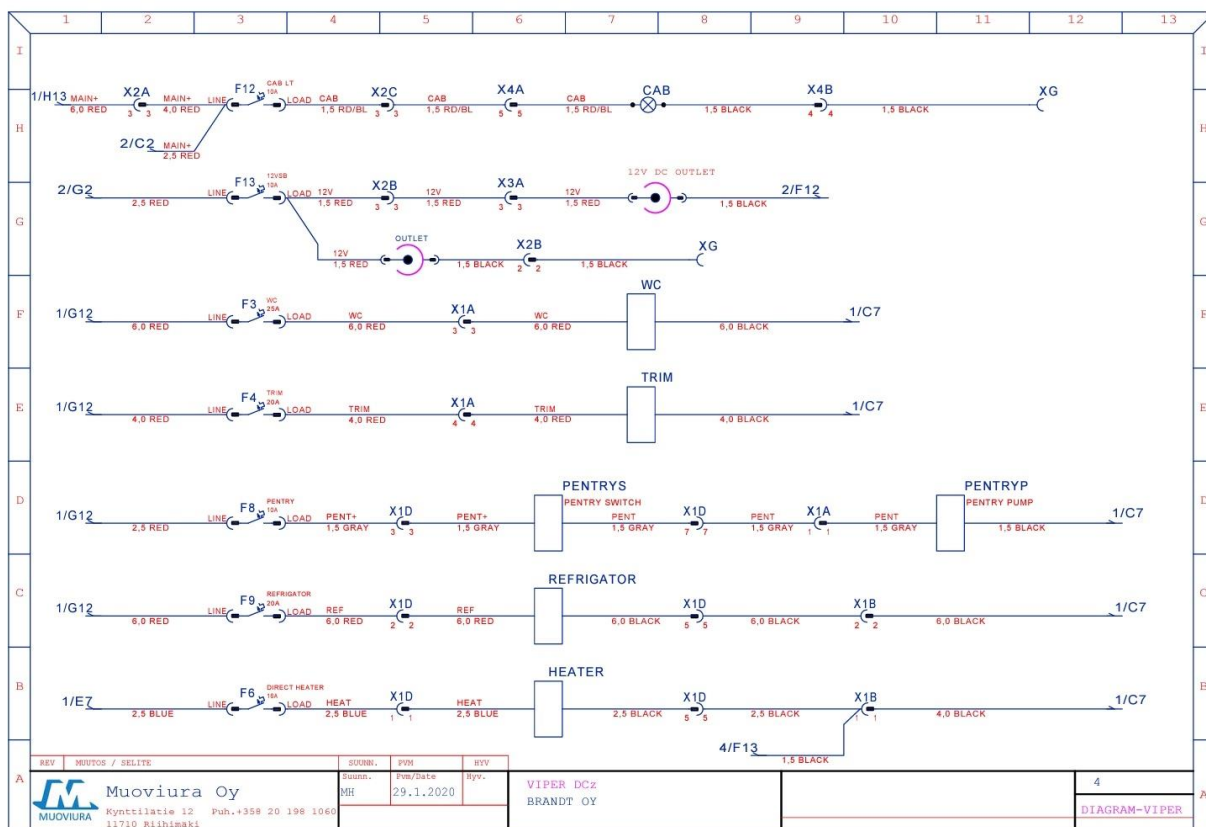
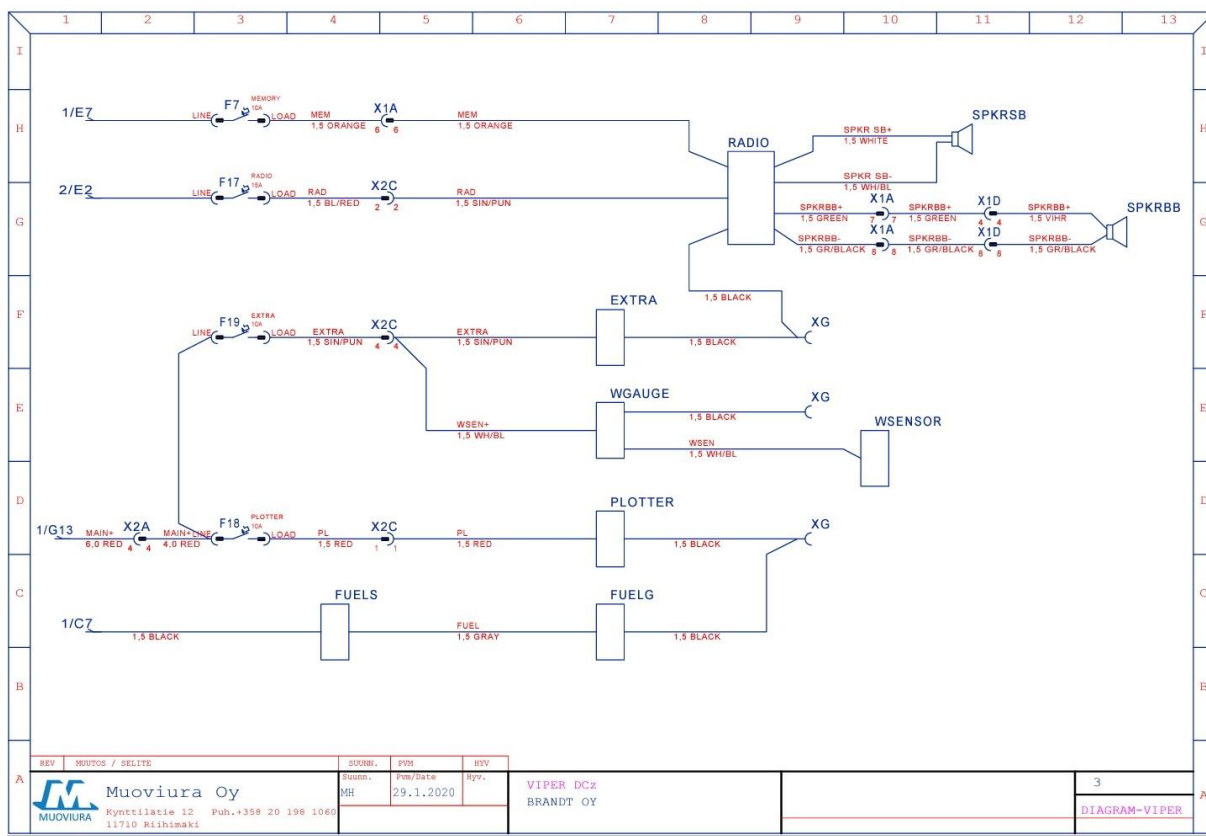
Only recharge the batteries with the boat's battery charger or one with equivalent power. Charging the battery with excessive current creates an explosion risk.

Do not alter the onboard electric system or relevant drawings; alterations and maintenance work have to be carried out by a professional.

NOTE! Main switches may not be switched OFF if the motor is running as this may damage the electrical system.

8.5 Wiring diagram





Silver[®] **RAPTOR**

Silver Raptor Day Cruiser

Owner's Manual

FOREWORD

Congratulations on choosing a Silver Boat!

This manual will familiarise you with the features of your new vessel and help with its care and maintenance. It has been written to help you learn to handle your craft safely and avoid any problems. Make sure that you have received manuals for all equipment fitted on your boat. Supplement this manual with the specifications and manuals of equipment you purchase later for your boat. Space has been left for your own notes at the end of the manual. Please read this manual carefully and familiarise yourself with the craft before using it.

If this is your first craft, or you are changing to a type of craft you are not familiar with, please ensure that you obtain sufficient handling and operating experience before assuming command of the craft. This is highly important for your own comfort and safety. Your dealer or national sailing association or yacht club will be happy to advise you of local boating schools.

This owner's manual is not a detailed maintenance or troubleshooting guide. In case of difficulty please contact the dealer. Always use qualified and competent people for the maintenance, repair and modification of the boat. Modifications that may affect the safety characteristics of the craft must be assessed, executed and documented by competent people. The manufacturer is not responsible for modifications they have not approved.

Always keep your boat in a good condition and be aware that the boat requires maintenance and servicing. Any craft, no matter how strong it may be, can be severely damaged if not used properly. Always adjust the speed and direction of the craft to prevailing weather conditions.

We wish you enjoyable and relaxing times on board your Silver Raptor DC

Oy Brandt Ab
Tuupakantie 7 B
01740 VANTAA
Finland

info@brandt.fi
www.silverboats.com

Please keep this user manual in a secure place, and hand it over to the new owner if you sell the craft.

Table of contents

1 General	6
1.1 DECLARATION OF CONFORMITY	6
2 Definitions	9
3 Warranty	9
4 Before use	9
4.1 Registration	9
4.2 Insurance	9
5 Characteristics and use of your boat	10
5.1 General	10
5.2 Basic information	10
5.3 Maximum recommend number of passengers	14
5.4 Loading	14
5.5 Engine and propeller	14
5.6 Prevention of water incursion and stability	15
5.6.1 Hull and deck through fittings and closing valves	15
5.6.2 Stability and buoyancy	16
5.7 Preventing fires and explosion hazards	17
5.7.1 Refuelling	17
5.7.2 Other fuel-operated systems (diesel heater optional accessory)	17
5.7.3 Fire protection	18
5.8 Main power switches and circuit breakers	19
5.9 Operation	21
5.9.1 Controls	21
5.9.2 Emergency switch	22
5.9.3 Gearshift and throttle	23
5.9.4 Adjusting the trim angle	23
5.9.5 Starting the engine	23
5.9.6 Driving	24
5.10 Steering system	24
5.10.1 Approaching and leaving the dock	25
5.10.2 Using the canopy	26
5.10.3 Windshield door	27
5.10.4 Stairs, sharp windshield corner and cabin door	27
5.10.5 Fuel system	28
5.10.6 Toilet system	29
5.11 Proper use – other recommendations and guidelines	29
5.11.1 Man overboard	29
5.11.2 Securing loose equipment	30
5.11.3 Bow cabin sliding door	30
5.11.4 Respect for the environment	30
5.11.5 Anchoring and mooring the boat	31

5.11.6 Towing	31
5.11.7 Trailer transport	32
5.11.8 Docking	33
6 Servicing and maintenance	34
6.1 Washing and waxing the boat	34
6.2 Care instructions for seat cushions	34
6.3 Care instructions for the canopy	35
6.4 Care instructions for the windshield	35
6.5 Care instructions for the stainless steel components	35
6.6 Care instructions for the steering system	36
6.7 Care instructions for electrical components	36
6.8 Minor superficial repairs	36
7 Winter storage	37
7.1 Measures before winter storage	37
7.2 Measures before launching the boat	37
8 Layout	39
8.1 General lay-out	39
8.2 Electrical system	40
8.3 Wiring diagram	42

BEFORE YOU SET OFF

Familiarise yourself with this owner's manual.

Always check at least the following before leaving:

- **Weather conditions and forecast**
Take the wind, waves and visibility into account. Are the design category, size and equipment of your boat, as well as the skills of the skipper and crew, adequate for the waters you are headed for? Hull windows and hatches must be battened down during high wind and rough seas to prevent water incursion.
- **Loading and stability**
Do not overload the craft and distribute loads appropriately. Heavy items are to be placed in the storage compartments under the aft seat. Also note that the boat is less stable if people stand up when on board.
- **Passengers**
Ensure that there are personal flotation devices or lifejackets for all people on board. Agree on crew tasks before setting off.
- **Fuel and fuel system**
Make sure that the boat has enough fuel, including a 20 % reserve for heavy weather or other unforeseen eventualities.
- **Engine and manoeuvring equipment**
Check the function and condition of steering and remote control and carry out routine checks according to the engine manual.
- **Seaworthiness**
Check the boat's seaworthiness: no fuel or water leaks, safety equipment available on board, etc. Check that there is no water in the bilge.
- **Fastening of equipment**
Check that all onboard items are positioned so that they will stay in place even in rough seas and high winds. Please note that the seat cushions may fly overboard if they are not fixed properly with press studs.
- **Nautical charts**
Unless you are navigating in completely familiar waters, ensure you have nautical charts on board that cover a large enough area! Your boat is equipped with a chart plotter, so learn how to use it before setting off. Ensure that the plotter charts are of the latest edition.
- **Leaving the berth**
Agree with the crew who will release each mooring line, etc. Be careful not to let mooring lines or the anchoring line become fouled in the propeller during manoeuvring.
- **Obligatory equipment**
What is considered obligatory equipment varies between different countries. Find out what is required for your boat.

You will find additional instructions concerning the engine in the separate engine manual.

1 General

The owner's manual will help you familiarise yourself with the properties and features of your new boat and with its care and maintenance. Separate manuals for installed equipment are attached and are referred to in many sections of the owner's manual. You can supplement this user manual by adding the manuals of devices which are installed afterwards. There is also space for your own notes at the end of the manual.

The craft has a running serial number, a WIN-code (Watercraft Identification Number). The WIN-code can be found on the starboard side of the transom just below the bathing platform. We recommend that you write down the WIN-code in this manual. When contacting the dealer, please provide the WIN code and the type of craft. This helps in delivering the correct spare parts.

1.1 DECLARATION OF CONFORMITY

Recreational Craft Directive 2013/53/EC

Manufacturer: Fenix Marin Oy

Module used: B, EC Type-examination

THIS DECLARATION IS PREPARED BY

Marketer: TerhiTec Oy /Oy Brandt Ab

Address: Sorvitie 4

Postal code: 63700

City: Ähtäri

Country: (code): FIN

(spelled out): Finland

NOTIFIED BODY

Name: VTT

ID number: no. 0537

Address: Post Box 1000

Postal code: 02044 VTT

City: Espoo

Country (code): FIN

(spelled out): Finland

EC type examination certificate:

VTT-C-11607-10-vene-001-16

DESCRIPTION OF THE RECREATIONAL CRAFT

Brand name of the recreational craft

Silver

Model or number

Raptor Day Cruiser

Design category

C

Boat type*	03
Hull type*	01
Deck*	02
Construction material*	02
Propulsion*	02
Engine type*	01
Maximum permitted engine power (kW)	261
Length and width of hull (m)	8.05 / 2.76
Draught (m)	approx. 0.5

* Please refer to codes on next page

I declare under my own and sole responsibility that the recreational craft mentioned above complies with all applicable essential requirements as specified on the following page.

Vantaa, 10th of June 2018

Peter Krusberg
Product Development Manager, Silver Boats, Z- series

Boat type:	Deck:
01 sailboat	01 decked
02 inflatable	02 partly decked
03 other: motorboat	03 open:
Hull type:	Propulsion:
01 monohull	01 sails
02 multihull	02 petrol engine
03 other:	03 diesel engine
	04 electrical motor
	05 oars
	06 other:
Construction material:	Engine type:
01 aluminum, aluminum alloys	01 outboard
02 plastic, fibre reinforced plastic	02 inboard
03 steel, steel alloys	03 z or sterndrive
04 wood	04 other:
05 other:	

	General requirements	
	Basic information	EN ISO 8666:2002
A2.1	Vessel identification	ISO 10087:2006
A2.2	Builder's plate	RCD annex I, A 2.2
A2.5	Owner's manual	EN ISO 10240:2004 / A1:2004
	Arrangements and equipment	
A2.3	Protection from falling overboard	EN ISO 15085:2003 / A2:2009
A3.7	Storage of life rafts	RSG Guidelines
A3.8	Exit	EN ISO 9094:2017
A3.9	Anchoring, mooring and towing	EN ISO 15084:2003
A5.7	Navigation lights, shapes and sound signals	1972 COLREG
A5.8	Discharge prevention	EN ISO 8099-1:2018
	Installation requirements	
A5.2	Fuel system	EN ISO 10088:2013, EN ISO 11105:1997
A5.3	Electrical system	EN ISO 10133:2012, EN ISO 28846:1993/A1:2000
A5.4	Steering system	EN ISO 10592:1995/A1:2000
A5.6	Fire protection	EN ISO 9094-1:2008
	Dimensions	
A3.1	Structure	EN ISO 12215-5:2008, EN ISO 12215-6:2008
	Hydrostatics	
A3.2	Stability and freeboard	EN ISO 12217-1:2015
A3.3	Carrying and floatation capacity	EN ISO 12217-1:2015
A3.6	Manufacturer's recommendation for the maximum load	EN ISO 14946:2001 / AC 2005
A3.4	Openings in hull, deck and superstructure	EN ISO 9093-1:1997, EN ISO 12216:2092
A3.5	Water incursion	EN ISO 15083:2003, ISO 8849:2003
	Handling characteristics	
A4	Handling characteristics	EN ISO 11592:2001, RSG Guidelines RFU 114, EN ISO 8665:2006
A2.4	Visibility from the principal steering station	EN ISO 11591:2011

2 Definitions

The warnings and cautions in this manual are defined as follows:

DANGER!	Denotes an extreme hazard that will result in a high probability of death or permanent injury if proper precautions are not taken.
WARNING!	Denotes a hazard that can result in injury or death if proper precautions are not taken.
NOTE!	Denotes a reminder of safe practices or directs attention to unsafe practices which could result in personal injury or damage to the craft or components or the environment.

SI system units are used in this manual. In some cases, other units have been added in brackets. An exception is wind speed, for which the Beaufort scale is used in the Recreational Craft Directive.

3 Warranty

The boat and its factory-installed equipment have a two-year warranty, starting on the first day of use. Please contact your dealer regarding any potential warranty issues. Please remember to provide the WIN code. If possible, please provide a digital photograph of the subject of your claim. This usually speeds up the claims process.

4 Before use

4.1 Registration

Registration regulations vary between different countries. Find out what is required in relation to your own boat.

4.2 Insurance

Boat insurance can compensate damage occurring on water or during transport and lifting. Check who has insurance liability each time when having the boat lifted. Insurance also has an indirect effect on safety at sea: In the event of a serious accident or damage, you must, above all, concentrate on saving people. Insurance companies will be able to give more information about different insurance alternatives. Check who has insurance liability each time when having the boat lifted or transported!

5 Characteristics and use of your boat

5.1 General

This user manual is not intended to be a complete service or repair manual; it simply guides the user on how to use the boat in the proper manner.

5.2 Basic information

Recreational crafts can be constructed according to 4 categories (A, B, C and D) under the Recreational Craft Directive 2013/53/EC. This boat has been constructed according to design category C. The meanings of the various design categories are explained below.

Category A: The boat is built for conditions where wind speed can exceed 8 Beaufort (approx. 21 m/s), and where the significant height of the waves (please refer to note below) can exceed 4 metres. In such circumstances the boats are largely self-sufficient. Category A does not include abnormal conditions such as hurricanes. Such conditions may be encountered on extended voyages, for example when crossing oceans, or in coastal areas where there is an open expanse of sea for several hundred nautical miles off the coast.

Category B: The boat is built for conditions where wind speeds can reach a maximum of 8 Beaufort (approx. 21 m/s), and where the corresponding significant height of the waves (please refer to note below) is 4 metres at most. Such conditions may be encountered on offshore voyages of sufficient length, or on coastal waters when unsheltered from the wind and waves for several dozens of nautical miles. These conditions may also be experienced on inland seas of sufficient size for the wave height to be generated.

Category C: The boat is built for conditions where wind speeds can reach a maximum of 6 Beaufort (approx. 14 m/s), and where the corresponding significant height of the waves (please refer to note below) is 2 metres at most. Such conditions may be encountered on exposed inland waters, in estuaries, and in coastal waters in moderate weather conditions.

Category D: The boat is built for conditions where wind speeds can reach a maximum of 4 Beaufort (approx. 8 m/s), and for corresponding seas (significant wave height does not exceed 0.3 metres, and the height of the greatest waves does not exceed 0.5 metres). Such conditions may be encountered on protected inland waters, and in coastal areas during fine weather conditions.

Note: Significant wave height is a term used in boat design. In practice, significant wave height means the average height of the highest third of all wave heights measured in the waters. If the significant wave height is 2.0 m, the mean height of all waves is roughly 1.2 m.

Maximum recommended load: See *technical specifications*
See also section 5.4 “Loading”.

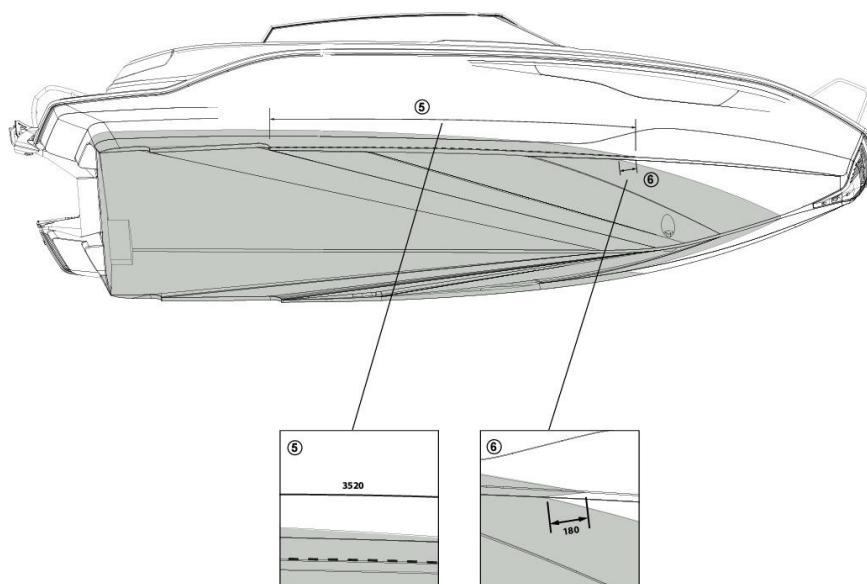
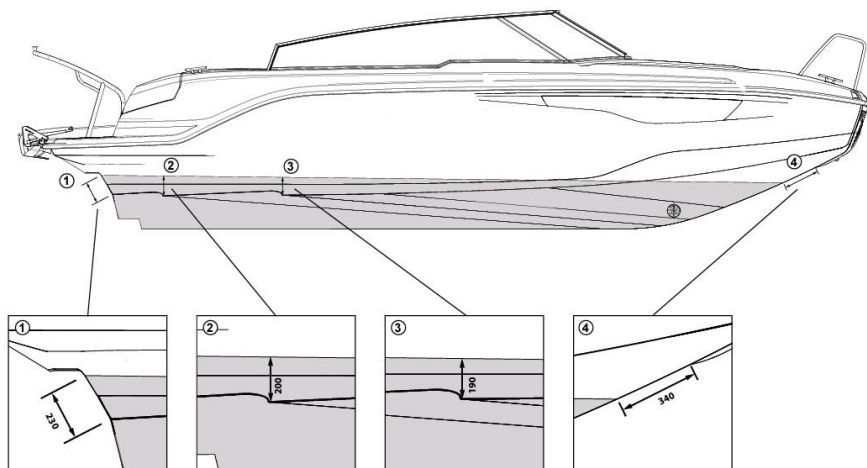
Main dimensions and capacities: See *technical specifications*
Craft length, width, draught, total weight, etc., and tank capacities are shown in the technical specifications.

Builder’s plate:
Part of the aforementioned information is given on the builder’s plate, which is affixed next to the remote control. Supplementary information is provided in the appropriate sections of this manual.

Technical specifications

Model	SILVER RARTOR DAY CRUISER	
Design category	C	
Overall length	8.05 m	
Width	2.76 m	
Weight without engine, fluids and equipment	approx. 1950 kg	
Weight on trailer with largest recommended engine	approx. 2551 kg	Includes the boat (approx. 1950 kg), outboard engine 350 hp (313 kg) and the estimated weight of fluids and equipment (341 kg). NOTE! This is not the maximum weight of fluids and equipment.
Weight on trailer with the largest engine that complies with the standard	approx. 2604 kg	Includes the boat (approx. 1950 kg) and a 350 hp engine (313 kg) and the estimated weight of fluids and equipment (341 kg). NOTE! This is not the maximum weight of fluids and equipment.
Maximum weight of load / Maximum number of passengers	1070 kg	10 persons
Maximum load includes	750 kg / 10 persons (75 kg each) + personal equipment 50 kg + fuel 195 kg + fresh water 45 kg and waste water 30 kg	
Maximum load on builder's plate (CE sign)	800 kg	Includes passengers 10 x 75 kg = 750 kg + personal equipment 50 kg
Weight at full load	3434 kg	Includes the boat 1950 kg + engine 313 kg + battery 2 x 20 kg + basic equipment 61 kg + personal equipment 50 kg + fuel 195 kg + fresh water 45 kg + waste water 30 kg + passengers 750 kg
Maximum engine power	261 kW / 350 hp	
Weight of largest recommended engine	313 kg	
Fuel tank capacity	261 litres	
Maximum draught at full load, engine up	0.5 m	
Maximum height from water line at light load	1.7 m	
Construction material	Glass fibre reinforced polyester	
Colour code:	RAL 9016	
Hydraulic hoses	2 x 2,6 m and 2 x 3,6 m	
Maximum speed at boat test	Approximately 44 knots	

Antifouling limit



5.3 Maximum recommend number of passengers

The boat's maximum recommended number of passengers is 8 persons.

WARNING!

Do not exceed the maximum recommended number of passengers. Regardless of the number of passengers, the total weight of people and equipment must never exceed the maximum recommended load (please refer to Section 5.4, "Loading"). Always remain seated on the boat. All persons on board must remain seated while the boat is moving.

5.4 Loading

The boat's maximum permitted load is 1,070 kg. This load includes the following weights:

- a) The total weight of passengers 750 kg (the default weight of an adult is assumed to be 75 kg and that of a child 37.5 kg)
- b) Liquids (fresh water, fuel, etc.) in fixed tanks 270 kg
- c) Personal equipment (e.g. recreational and camping equipment) 50 kg
- d) Other load (full septic tank) 30 kg.

NOTE!

The maximum permitted load only includes the weights mentioned above.

WARNING!

Never exceed the maximum recommended load when loading the craft. Always load the craft carefully and distribute loads appropriately so that the boat is on an even keel. Heavy equipment should usually be placed in the storage compartment under the aft seat. If the boat is carrying the maximum number of passengers, heavy items should be placed in the bow so that the boat will not be tail-heavy. Always avoid placing heavy items high up.

5.5 Engine and propeller

The maximum engine power for the boat is 350 hp (261 kW). Using a more powerful engine than specified on the CE plate will void the boat's warranty. Follow the dealer's instructions when choosing the propeller for your boat.

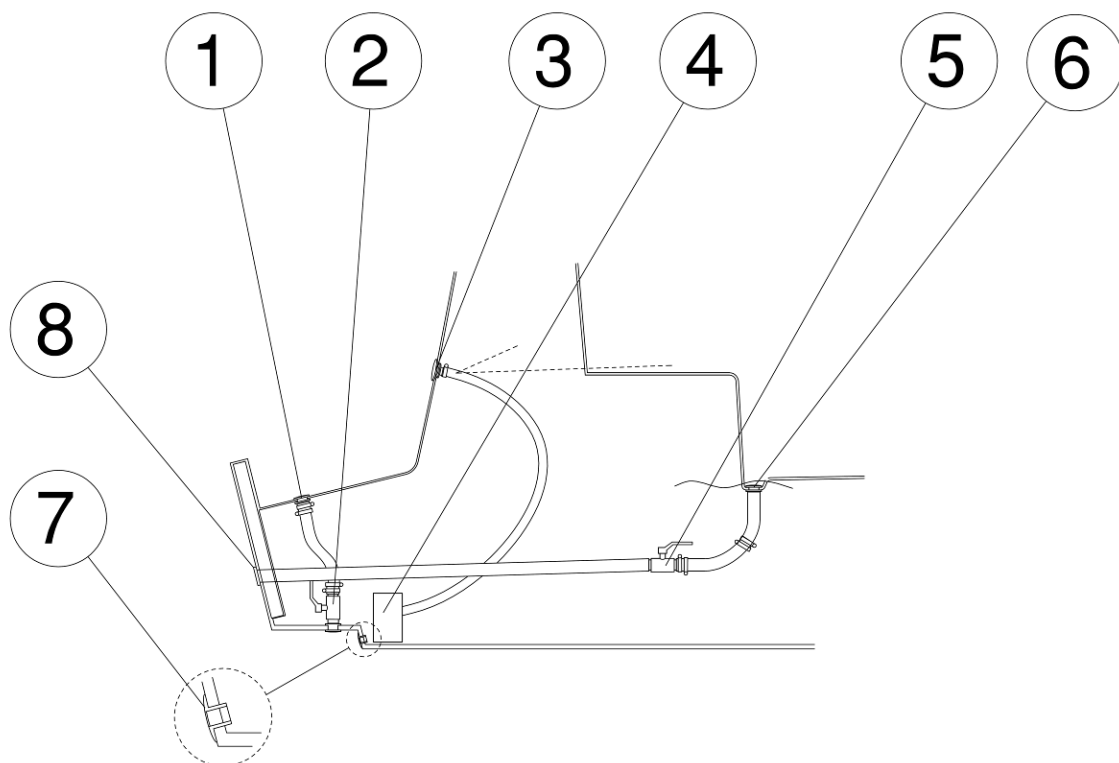
5.6 Prevention of water incursion and stability

5.6.1 Hull and deck through fittings and closing valves

The boat has a rainwater drainage system, which means that rainwater in the open space of the boat is drained when the boat is on the water. The system also functions when the boat is out of water, provided that the bow is higher than the stern and closing valve is open. The rainwater drainage valve is located underneath the plywood plate of the middle hatch of the aft sofa. This drain valve is meant to be shut only when at heavy load to prevent potential water incursion. **In other loading conditions the drainage valve should remain open to let rainwater drain from the boat.**

The boat has an electric bilge pump in the bilge (location shown in the picture below). The function of the bilge pump is automatic meaning that it will automatically empty the bilge if there will appear water. The capacity of the electric bilge pump is about *40 l/min*. On the right hand of the steering wheel you find the manual switch to turn on the electric bilge for testing/checking the function. In the switch there is a light that will turn on if there is water in the bilge. If the light turns on you should immediately check the bilge by open the inspection hatch in the plywood bottom plate underneath the middle hatch in the aft sofa. If the bilge is empty you can continue boating but if the light turns on again and pump starts to empty the bilge you have to immediately drive to the shore and nearest harbour or landing-stage and thereafter lift up the boat from water to find out the reason to the leakage.

The electric bilge pump can be checked by opening the inspection hatch in the engine well.



Rainwater drainage system and bilge pump system

1. Engine well drainage through fitting
2. Engine well drainage valve
3. Bilge pump's drainage through fitting
4. Bilge pump
5. Cockpit rainwater drainage valve
6. Cockpit rainwater drainage through fitting
7. Drain plug for hull
8. Shut-off flap for cockpit rainwater drainage pipe

The owner of the boat is responsible for ensuring that there is at least one baler or bucket on the boat.

WARNING! The bilge pump system is not intended to cope with a leak caused by running aground or other equivalent damage (hull damage).

SAFETY MEASURE! Regularly check to ensure that there is no debris around suction grid of the bilge pump.

WARNING! Always keep the drainage pipe valve shut when the pipe's inboard end is constantly under water due to heavy loading. The shut-off flap on the transom only prevents water from entering the boat when reversing!

NOTE! Make sure that water can flow unobstructed through the drainage pipe. Debris such as autumn leaves may obstruct the water flow, which can cause the boat to fill with water and sink. The bilge pump system does not work in conditions below 0°C.

NOTE! There is always some condensed water in the bilge. The hull bushings may also allow water to seep through, particularly as the boat ages. Always remember to check the bilge before you leave the boat at quay or buoy, and always before setting off. Have any leaks repaired at an authorised repair shop.

WARNING! The boat's handling properties may become extremely dangerous if there is water in the bilge.

5.6.2 Stability and buoyancy

Please note that stability will be reduced by any weight added high up on the boat. Any change in the distribution of weight on board may significantly affect the stability, trim and performance of your boat. Please remember that large breaking waves always present a serious danger to stability.

5.7 Preventing fires and explosion hazards

5.7.1 Refuelling

Shut off the engine and extinguish any cigarettes before starting to refuel. During refuelling, do not use switches or appliances that can cause a spark.

Hint: If you are afraid of getting fuel on the synthetic teak deck during refuelling, wet the deck with water. You can also hold a rag in front of the fuel filler to prevent fuel from splashing on the deck.

Always keep a spare can of fuel on board. The anchor boxes at the stern are especially suitable for storing the spare cans as there is no risk of vaporised fuel coming into contact with battery compartments or the electrical system from either of these boxes.

Do not stow any loose items under the aft sofa that could prevent fuel flow to the engine if they shift. Check the fuel hoses annually for wear, especially at through fittings.

Please note that, depending on the trim of the boat or the boat's heeling angle, it might not be possible to use the full capacity of the fuel tank.

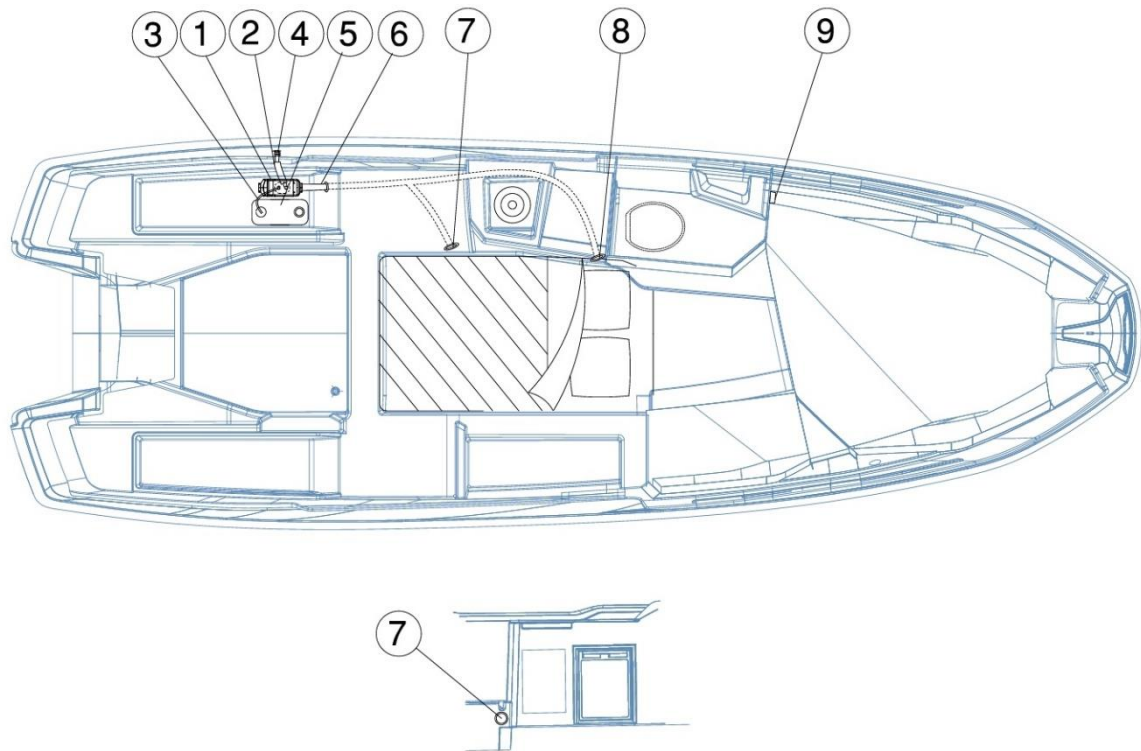
If the boat is on trailer behind a car when refuelling, please note that the fuel tank ventilation does not work efficiently if the bow of the boat is downwards.

WARNING! Vaporised fuel is highly explosive. Observe these instructions and the utmost caution during refuelling. The smell of fuel always means that there is vaporised fuel on your boat.

5.7.2 Other fuel-operated systems (diesel heater optional accessory)

The diesel-operated heater (optional accessory) has its own user manual and the operation is not described in this manual. The fuel tank for the heater is located underneath the aft sofa. Turn off the heater when refuelling the diesel tank. When handling diesel, do not use switches or appliances that can cause a spark. Always clean any spilled fuel immediately.

NOTE! If the boat is equipped with a heater (optional accessory), do not block the exhaust grates when the heater is switched on. This will cause the heater to overheat and engage the overheat protector.



1. Heater (diesel)
2. Heater exhaust pipe
3. Suction hose from heater tank to heater
4. Exhaust pipe thru hull fitting
5. Heater fuel tank
6. Hot air flex tube
7. Hot air outlet in cockpit
8. Hot air outlet in cabin
9. Heater control panel

5.7.3 Fire protection

The boat is equipped with a portable 2 kg fire extinguisher class 8A 68 B, which is the minimum power requirement for extinguishers. For the extinguisher to remain reliable, it should be inspected annually by an authorised inspector. In the event that the fire extinguisher is replaced, the capacity of the new one must be at least equivalent to the old.

The fire extinguisher is in the storage compartment behind the driver.

Ensure that firefighting equipment is readily accessible even when the boat is loaded. Inform members of the crew about the location and operation of fire-fighting equipment. The fire extinguisher is located in the storage compartment behind the driver in the open deck space. There is a red extinguisher sign outside sofa showing the location of the extinguisher.

Remember:

- Never hinder access to safety equipment, for instance the switches to the electric system.

- Never hinder access to fire extinguishers located in a box.
- Never leave the boat unsupervised while the cooker or heater is on.
- Never make alterations to any of the boat's systems (especially the electricity or the fuel systems) or allow an unqualified person to make alterations to any of the boat's systems.
- Never refill a fuel tank when the boat's engine is running, or the cooker or heater is on.
- Never smoke while handling fuel or gas.

5.8 Main power switches and circuit breakers

Operation of the main power switches:

Switch the power off from both main switches when leaving the boat, and always switch both switches on when using it. Green color = ON and red color = OFF.



Remember to always use both main switches when switching the power off or on. Remember also to switch off the main power switch before making any electrical installations.

All fuses are automatic circuit breakers. In the event of a fault current, the circuit breaker will trip.

You can reset the circuit breaker by pushing it back in. If the circuit breaker immediately trips again, there is a short-circuit somewhere in the electrical system or in a component. You must leave repairing the boat's electrical system to a professional electrician.

Fuse sizes are presented in the electrical diagram. Do not change the circuit breaker amperages or install any components that exceed the nominal amperage of the circuit in the electric system.

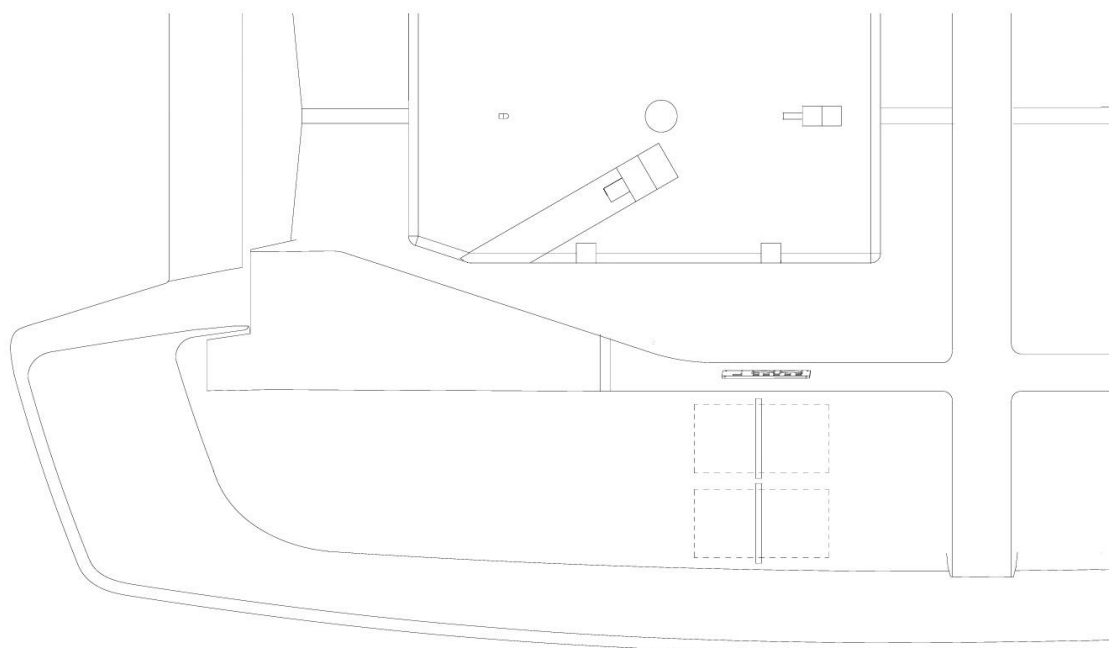
NOTE! Remember also to switch off the main power switch before making any electrical installations.

NOTE! Never switch off the main switch while the engine is running! It can cause serious damage to the engine's electric system.

NOTE! Do not perform electric installations (such as changing lamps) when the power is on. Leave any larger installations to professionals.

NOTE! When connecting or disconnecting the battery, do not touch both terminals simultaneously with metal objects.

Battery compartment is situated under aft sofa.

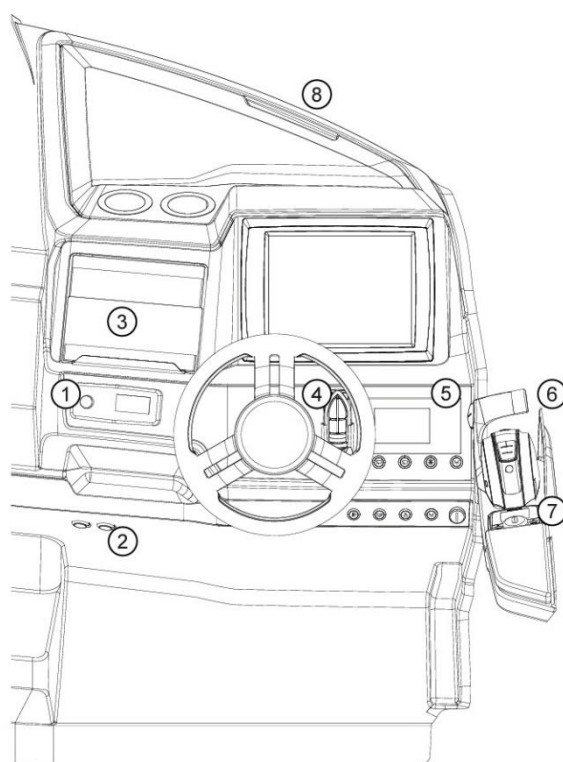


5.9 Operation

If this is your first boat or a boat type new to you, take someone with experience of a similar boat with you the first few times you operate it.

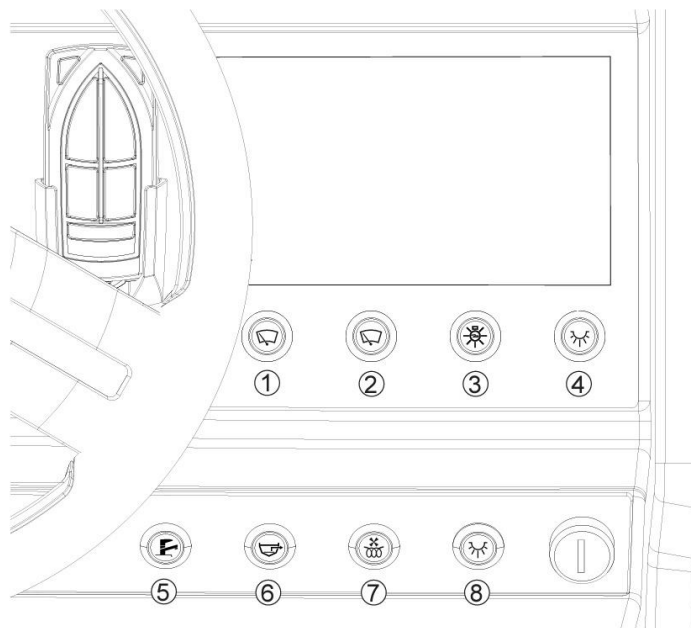
5.9.1 Controls

You will quickly learn how to control your boat, but changing weather conditions, such as wind and waves, will always present new challenges for the driver. The remote control combines the functions of throttle, forward and reverse gears, and the adjusting of the engine trim angle. The boat is equipped with hydraulic steering.



1. Radio
2. 12 V outlets
3. Glov box and mobile holder
4. Bow truster remote control
5. Ignition switch
6. Gearshift and throttle control for outboard engine
7. Zipwake control panel
8. Defroster outlet

Switches



1. Portside wiper
2. Starboard wiper
3. Navigation lights
4. Cockpit and bath platform lights
5. Fresh water pump
6. Bilge pump manual switch and also water in bilge warning light
7. Defroster fan
8. Bow light

5.9.2 Emergency switch

The emergency switch is a device that you have to attach to the remote control or to the ignition key panel (depending on what outboard motor brand). The other end you should attach around your knee. The emergency switch automatically switches off the engine when detached from the remote control. It is very important that the boat will come to a halt if the driver, for whatever reason, loses his/her balance and is flung from the helm.

NOTE!

Never take control of the boat without having attached the emergency switch to yourself. If you attach the emergency switch to your arm, do not steer the boat with that arm, because the chain may be tangled in the steering wheel during tight turns.

NOTE!

The engine will not start if the emergency switch is not attached to the switch on the remote control.

DANGER!

A rotating propeller presents a life-threatening danger to a swimmer or a person who has fallen overboard. Always use the emergency switch to turn off the engine when a swimmer or water skier is about to re-enter the boat from the water.

5.9.3 Gearshift and throttle

The engine is put into gear by pushing the button on the gear/throttle handle upwards with your fingers and by pushing or pulling the gear/throttle lever forward or backward, depending on the direction in which you are planning to go. When the engine is in gear, you can adjust the boat's speed using the same gear/throttle lever.

When the boat is travelling forward slowly, you can use the reverse gear for braking when approaching the dock, for instance. Shifting into reverse must not be done if the boat is travelling at higher speeds, because it will damage the engine.

5.9.4 Adjusting the trim angle

The boat is equipped with Zipwake automatic trim system. The system can also be manoeuvred manually.

WARNING!

If you use the trims manually, adjust the trim controllers carefully at high speeds. They will change the behaviour of the boat radically.

WARNING!

Waves reduce manoeuvrability and make the boat heel. Accordingly, reduce speed when encountering heavier seas.

5.9.5 Starting the engine

1. Switch the power on using the main power switches.
2. Lower the engine to the driving position by pressing the Power Trim button on the gear/throttle handle.
3. Check that the gear/throttle handle is in the neutral position and that the emergency switch is attached to the bottom of the remote control.
4. Switch on the current, using the start key, without starting the engine and wait a few seconds for the warning lights to light up.
5. Start the engine by turning the ignition key clockwise until the engine starts. If everything is in order, the engine should start within 1-2 seconds. If the engine does not start, you should not try to start it for more than 10 seconds at a time.
6. After the engine has started, let it idle for a few minutes before setting off. (Please refer to the engine manual)

For more detailed information, please refer to the engine manual.

5.9.6 Driving

It is easy to drive when the weather is fine and the sea is calm. However, always remember to keep an adequate lookout. In order to maintain the best possible visibility from the driver's position, you should do this:

- Ensure that passengers do not restrict your visibility.
- Do not drive near planing speed for long periods, as the bow comes up and reduces visibility.
- When visibility is poor, look over the windshield.
- Remember to also keep a lookout behind you, particularly on shipping lanes.

Use navigation lights in darkness.

Always adjust your speed to prevailing conditions and the environment. Take into account the following:

- waves (also consult the passengers on what is a comfortable speed);
- your own bow wake (greatest at planing speed, smallest at speeds under 5 knots);
- visibility (islands, fog, rain, driving against the sun);
- familiarity with the route (time required for navigation);
- width of the route (other traffic, noise and bow wake near shore).
- Make sure to always maintain a sufficient distance to avoid collision. The distance must be sufficient to stop the boat or to take evasive action.

When running at low speed, a planing boat's directional stability is poorer than at higher speeds. So be careful in narrow passages and, particularly, when meeting other boats.

5.10 Steering system

The boat is equipped with hydraulic steering. With hydraulic steering, the steering wheel's position changes constantly, which is why the boat is equipped with a symmetrical steering wheel.

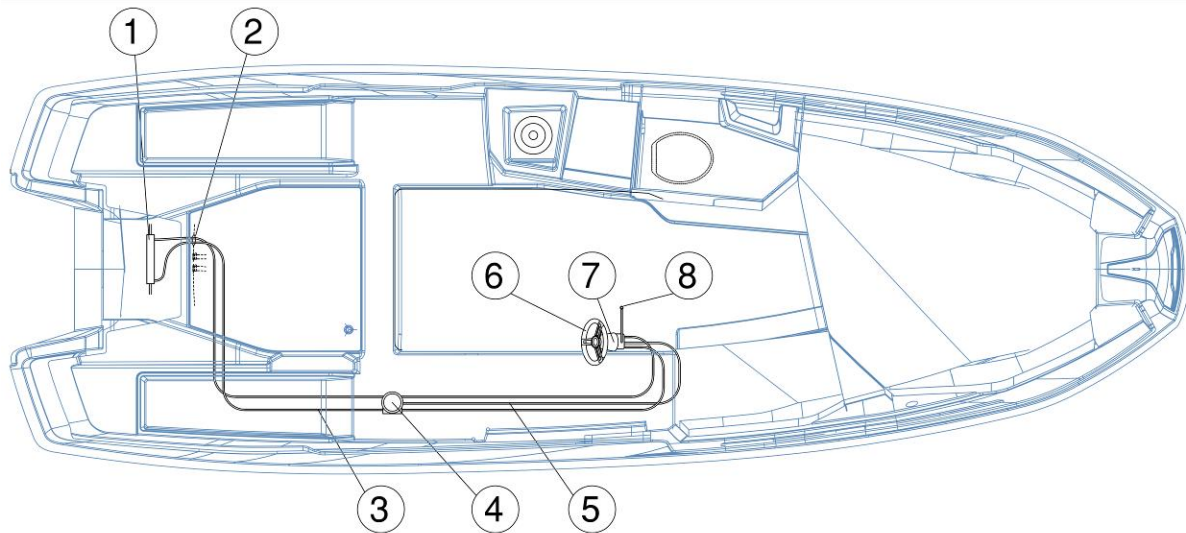
The hydraulic steering does not require maintenance under normal circumstances. If the steering starts to feel loose, there is a leak somewhere in the system. Leaks must be repaired immediately!

NOTE!

If you replace any component in the steering system, please note that all components must conform to the ISO 10592 standard and bear the CE mark.

WARNING!

A hydraulic steering system that has a leak or trapped air in the hoses is extremely dangerous.



- | | |
|-----------------------------------|----------------------------------|
| 1. Hydraulic steering cylinder | 5. Pressure compensation hose |
| 2. Hydraulic hoses | 6. Steering wheel |
| 3. Hydraulic hoses | 7. Tilt-function |
| 4. Power steering unit (optional) | 8. Hydraulic oil filling fitting |

You must learn the rules of traffic on sea lanes and follow the international regulations on how to avoid collisions at sea, COLREG. Navigate with care and use new or updated nautical charts.

The running position of the boat greatly affects its handling characteristics and fuel consumption as well as visibility from the driver's position. You can affect the running position by:

- placing the load properly – the general rule being that you should place as little weight in the bow as possible; and
- adjusting the trim angle.

The combination of the right running position with the right speed also makes driving in rough seas safer and more comfortable.

WARNING!

A high speed and sudden manoeuvring in rough seas can lead to loss of control over the boat and large heeling angles.

NOTE!

The boat is not designed to jump waves. The warranty does not cover damage caused by flight. It is possible to check whether the engine has been airborne from the engine history on the repair shop's computer.

5.10.1 Approaching and leaving the dock

Practise boat manoeuvring skills where there is ample space to learn how to approach a dock before entering a crowded marina.

A very gentle application of throttle does not generate sufficient steering power. Sharp but short throttle applications enable efficient steering movements when approaching the dock.

Ensure that everyone on board who does not have to stand up is seated when you are approaching the dock. Sudden steering movements may cause the boat to heel and injure somebody.

Before docking, prepare the mooring lines at stern and bow. Approach the dock bow first at a slight angle. Just before touching the dock, steer into it and shift into reverse. Apply throttle quickly and sharply. The boat will stop and turn parallel to the dock. If possible, make the approach into the wind or current, whichever is the strongest. This makes departing easier, as the wind or current will push the bow out from the dock. The easiest way to depart is to first push the stern as far away from the dock as possible, and then slowly reverse away from the dock into open water.

The propeller is designed to have the best grip in forward gear. Therefore, propeller performance is weaker in reverse. The steering response is also not as good in reverse as in forward gear.

WARNING!

The boat is fast. If you are planing, it takes time to come to a stop. Slowdown in time before anchoring, beaching or docking. Learn to estimate the distance the boat needs to stop. Remember that steering control is poor if there is no traction.

WARNING!

Do not try to stop the boat with your hands, and do not put your arm or foot between the boat and the dock, the shore or another vessel! Practise beaching and docking under favourable conditions! Use moderate but firm engine power!

NOTE!

When securing your boat, take into consideration the possibility of changes in wind direction, rising or sinking of the water level, bow wakes, etc. You can get more information from your insurance company, for example.

5.10.2 Using the canopy

The canopy is designed to withstand a maximum speed of 30 knots at sea, and 50 km/h in road transport. All press studs must be properly fastened when using the canopy. The canopy's design allows raising just the front part. We recommend that you remove the sides and back of the canopy to make it fit into the canopy box more easily. Then, fold the upper parts of the sides entirely on top of the roof, so that no fabric remains where the corners of the canopy supports are. Finally, roll up the roof part along with the sides folded on top of it, and lower the canopy into the canopy box.

NOTE! The boat should not be driven in rain with the canopy down. The equipment in the open deck space is not water-tight and must be protected from the rain. A canopy or a mooring cover must be used when docked in port.

NOTE! The windscreen and canopy do not necessarily form a watertight seal.
Water may enter the boat between the canopy and windshield when the canopy is up.

5.10.3 Windshield door

The windshield door must always be kept shut and locked when the boat is moving. The door has not been designed to be used as a railing when getting in or out of the boat. The door must be held on to as it is opened until it is attached to the stopper. Likewise, it must be held on to until it is closed. In other words, do not let go of the door when opening or closing it.

WARNING! The door must be kept closed in rough seas or strong or gusty winds, since it may slam shut. The door is heavy and may cause injury if it strikes someone when slamming shut.

WARNING! Large waves or gusts of wind may slam the door shut also when the boat is stationary. It is thus recommended to always keep the door closed when the passage through the bow deck is not being used.

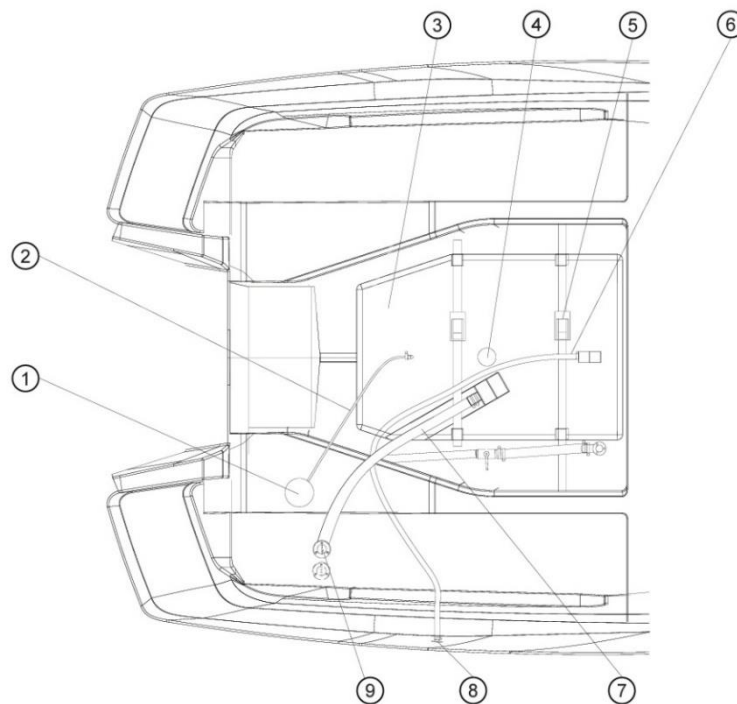
5.10.4 Stairs, sharp windshield corner and cabin door

Great care must be taken when using the stairs, particularly when the cabin door is partly open.

WARNING! The bow anchor box hatch is equipped with a rubber band that holds the hatch closed while driving.

WARNING! It is not recommended that children do not use the hatch, as their fingers or toes could get caught in it.

5.10.5 Fuel system



1. Fuel filter inside anchor box
2. Fuel hose between tank and filter
3. Fuel tank
4. Fuel level sender
5. Fastening belt
6. Fuel tank ventilation hose
7. Fuel filling hose
8. Fuel tank ventilation thru hull fitting
9. Fuel filling deck fitting

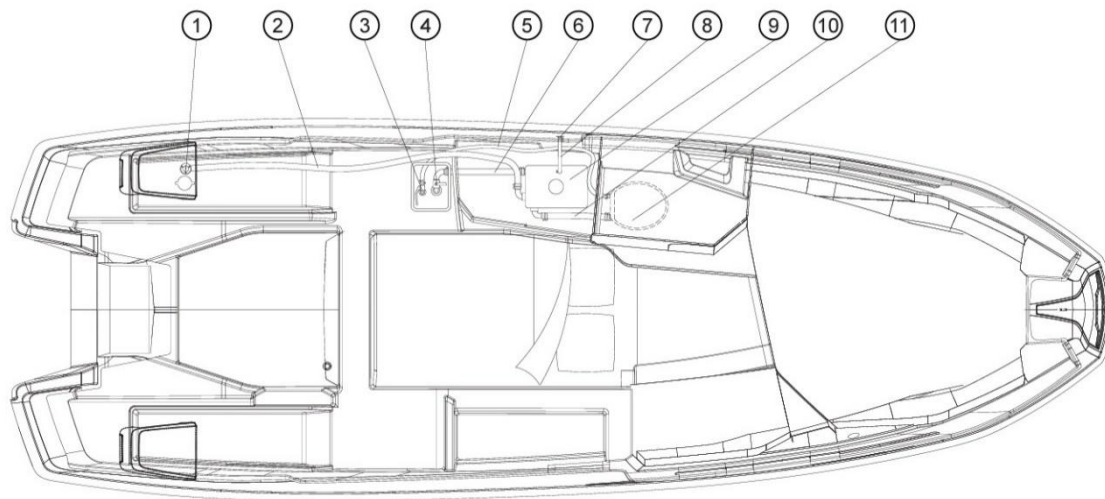
The boat is equipped with a built-in fuel tank. A fuel filter is installed in the fuel line, also functioning as a water separator. The filter must be changed at least once a year. When a new or removed filter has been mounted, the fuel line must be filled with a ball pump before starting the engine.

NOTE! The condition of the fuel hoses must be inspected annually, and every effort should be made to prevent damage to them. Damaged fuel hoses must be replaced. If you replace fuel hoses, make sure the new hoses have an ISO 7840 label.

The refill cap is situated under the fender box hatch on starboard (right) side in the stern. The location of the fuel tank refill cap is marked on the deck by the  symbol.

The cap of the fuel tank contains the text GAS, PETROL or FUEL, which refers to petrol 95E or 98E (recommendation).

5.10.6 Toilet system



1. Deck fitting for vacuum emptying of waste water tank
2. Hose between septic tank and deck fitting
3. Flush water valve in connection to thru hull fitting
4. Sea water emptying valve in connection to thru hull fitting
5. Flush water hose
6. Sea water emptying hose
7. Waste water tank ventilation thru hull fitting
8. Waste water tank ventilation hose
9. Waste water tank
10. Hose between toilet and waste water tank
11. Toilet

5.11 Proper use – other recommendations and guidelines

5.11.1 Man overboard

It is always a serious situation when someone falls overboard. Rescue procedures should be practised in advance during good weather, because it is too late for practice when someone has actually fallen into the water.

It is always easiest to help a person climb back on board at the stern of the boat. A rope loop attached to the boat helps lifting. The boat's swim ladder extends 30 cm into the water. If a

child has fallen overboard, an adult carrying an extra life-saving device or a fender must always jump in after the child; however, someone must always remain on board the boat.

It is very important to maintain visual and verbal contact with a person that has fallen overboard.

DANGER! A rotating propeller presents a life-threatening danger to a swimmer or a person who has fallen overboard. Always use the emergency switch to turn off the engine when a swimmer or water skier is about to re-enter the boat from the water.

Potential life-raft, the recommended location is under the back seat.

5.11.2 Securing loose equipment

Stow all heavy equipment, such as anchors, and secure them firmly before setting off.

5.11.3 Bow cabin sliding door

NOTE! The sliding door of the cabin must be kept closed while driving.

5.11.4 Respect for the environment

Conservation of the environment is a matter of honour for every boater. Therefore, you should avoid:

- fuel and oil leaks;
- emptying rubbish and waste into the water or on the shore;
- letting detergents or solvents get into the water;
- loud noise both on the water and at the marina; and
- producing an unnecessarily high bow wake, especially in narrow passages and shallow waters.

Service the engine well and run it at the most economical speed, which will also keep exhaust emissions low.

Please also consider other local environmental legislation and regulations. In Finland, under 'everyman's right' anyone may move around on private land, except in the vicinity of residential buildings, as long as they cause no damage or inconvenience. 'Everyman's right' also allows movement and temporary anchorages on privately owned waters, swimming and going on shore at uninhabited locations, unless landing is specifically prohibited by a notice from the authorities. It is not allowed to anchor next to a shoreline where there are one or more residences. Docking at a private dock owned by someone else or landing on a shore where there are residences is also not allowed without permission.

Please make sure to familiarise yourself with the International Convention for the Prevention of Pollution From Ships (MARPOL) and respect it to the greatest possible extent.

It is allowed to camp out on islands as long as no damage is caused to the landowner. It is not allowed to camp out next to residential buildings or in or near cultivated fields. You may not light a campfire unless you have the landowner's permission. Everyman's right allows the picking of naturally growing berries and mushrooms without damaging trees or the environment in general. Please check the regulations concerning movement in the natural environment in your area.

5.11.5 Anchoring and mooring the boat

Always moor your boat carefully, even in sheltered places, because conditions can change rapidly. Mooring lines should be equipped with absorbers to dampen any jolts. Please refer to the section Towing for the location of bollards. To prevent abrasion, use fenders that are large enough.

The forward endurance of the bow bollards is at least 23 kN, or c. 2,300 kg. The backward endurance of the stern bollards is at least 16.0 kN, or c. 1,600 kg.

The minimum anchor weight for the boat is 5 kg. Drop anchor far enough from shore. A reasonable grip is attained if the anchor line length is 4–5 times the water depth.

WARNING! Do not try to stop the boat with your hands, and do not put your arm or foot between the boat and the dock, the shore or another vessel!

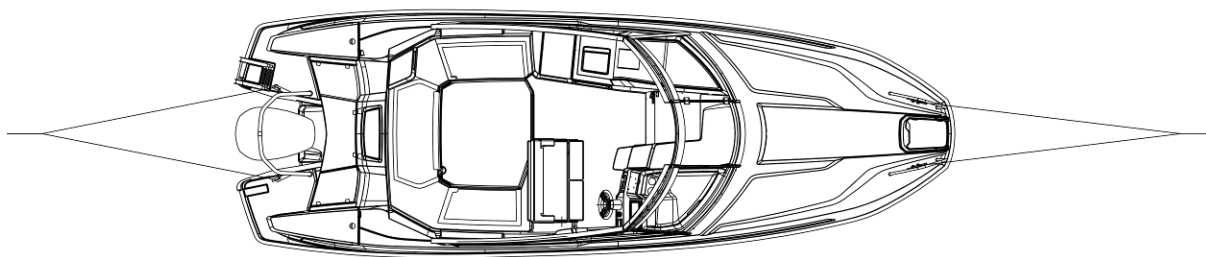
NOTE! When securing your boat, take into consideration the possibility of changes in wind direction, rising or sinking of the water level, bow wakes, etc. You can get more information from your insurance company, for example.

5.11.6 Towing

When towing another boat, use a floating line that is strong enough for the task. Begin towing slowly, avoid jerks, and do not overload the engine.

The owner of the boat should consider the measures necessary for securing the boat's towrope.

If you are towing, or if your boat has to be towed, attach the towline to the bow or stern bollards as per the following image.

**WARNING!**

When towing, the towline is under high tension. If it should break, the end that snaps off may lash back fast enough to cause serious injury or death. Always use a thick enough line and keep to one side of the towline.

NOTE!

When towing another boat or being towed, always drive at low speed. If the boat has a displacement hull, never exceed hull speed while towing.

NOTE!

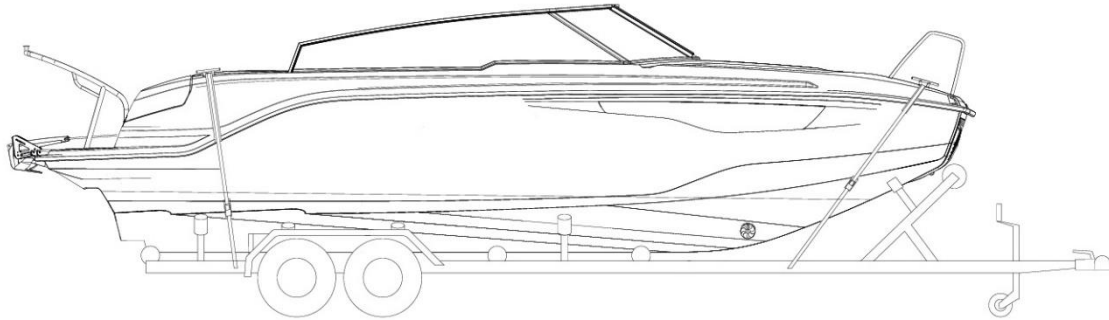
The towline should always be fastened so that it can be unfastened under load.

5.11.7 Trailer transport

Weight data for trailer transport may be found in the technical specifications. The trailer's keel supports should bear most of the weight of the boat. Adjust the side supports so that the boat will not rock sideways. For more information, please turn to your dealer.

Clean the supports of sand and dirt so that they will not scratch the bottom of the boat. Double-check that the trailer is securely coupled to the trailer tow hitch!

The place for lifting the boat out of the water should be sheltered, and the ramp should extend deep enough into the water. Reverse the trailer so deep into the water that the rearmost keel support is just above the water. Drive the boat carefully towards the rearmost keel support. Fasten the hoist cable to the towing eye and reel the boat up onto the trailer, making sure that the boat remains straight on the trailer's centre line. Remember to trim up the engine before reeling the boat onto the trailer so that it will not hit the bottom.



Tie the boat properly before beginning transport. The sling ropes at the bow should be directed down and back, and the sling ropes at stern should be directed down and front. Do not leave any loose equipment or extra load on the boat when it is being transported. Remove the seat cushions and close all hatches properly.

The engine should be in the driving position during transport. However, ensure that there remains adequate clearance. If the clearance is not sufficient in this position, you can transport the engine raised. In this case, the engine must be supported with a suitable support to protect the transom.

If the boat is kept on the trailer between transports, you must loosen the sling ropes for the duration and tighten them before the next transport.

NOTE!

The trailer should be slightly front-weighted. Make sure that the boat is fastened tight enough to the trailer and that the weight of the boat is divided equally between side supports. If the boat swings against a side support during transport, it may sustain hull damage.

When letting the boat down from the trailer, remember to fasten the bow rope to the boat beforehand so that you can release the cable/rope from the trailer hook as soon as the boat is in the water. Be careful with the winch handle!

5.11.8 Docking

The storage cradle should be sufficiently steady and suitable for this particular boat and engine combination. A sturdy plank (2x4"), should be placed between the "V" trestles to support the keel and to bear most of the weight of the boat. The boat must not rest on the side supports. The side supports should not be placed at the corners on the bottom, and point loads should be avoided. The supporting structures should be strong, particularly near the transom, to support the added weight of the engine.

Only use reputable lifting companies or boat yards with sufficient lifting capacity.

When the boat is being lifted, the lines must be placed under the boat and the boat must remain horizontal during lifting.

NOTE! Do not lift the boat by its bollards.

DANGER! Never stand under a boat that is suspended from a crane.

6 Servicing and maintenance

Keep your boat and its equipment clean and tidy. This increases comfort and safety on board, and also the boat's resale value.

Familiarise yourself with the service procedures shown in the engine manual (see annex). Have your engine serviced according to the instructions in the manual.

6.1 Washing and waxing the boat

Normally it is sufficient to just wash and wax the deck and sides. Special boat cleaning agents are most suitable for the purpose. Use mild detergents. Do not use strong solvents (pH value must not exceed 11); they can cause glossy reinforced plastic surfaces to fade. Mildly abrasive polishes can be used to remove chafes and embedded dirt from the deck. Fibre glass surfaces can be washed with a pressure washer.

Useful tip: When the boat has been washed with tap water, a thin chalk-like layer of lime and minerals will remain on the boat's surface after it has dried. The problem can be eliminated by adding a few drops of pine oil soap into a bucket of rinsing water, which will soften it.

Useful tip: Water and lime stains on stainless steel rails can be removed using Lemon Pled furniture spray. Your railings will shine like the day they came off the assembly line.

Useful tip: If the boat's ropes smell bad after the season, immerse them for a couple of hours in a bucket of water with a bottle of apple vinegar and a splash of fabric conditioner added. Allow the lines to dry properly, and they will be as good as new.

6.2 Care instructions for seat cushions

Always use the canopy or harbour cover when it is raining to protect the open deck space and seat cushions. Although the seat cushions are made of water-resistant material, water can get in through their seams. If the cushions remain damp for any length of time, they may get mouldy and be ruined. If the mattresses get wet, the fabric can be removed by unzipping

the mattress and dried in the sun, at room temperature or in a sauna (50°C). The warranty does not cover cushions spoilt by rain or damp.

NOTE! To keep the boat's seat cushions in good condition over the winter, they should be stored in a dry, well-ventilated space.

NOTE! Wet cushions should not be placed in storage, because they gather mould easily.

The press studs of the seat cushions should be sprayed with silicon spray every now and then, otherwise they may become so tight that the fabric will tear when trying to open them. The warranty does not cover ripped seat cushions. Use very little silicon spray at a time in order not to stain the cushions.

6.3 Care instructions for the canopy

Store the canopy over winter in a dry and well-ventilated place. The warranty does not cover torn or mouldy canopies.

6.4 Care instructions for the windshield

The boat's windscreen is made of tempered glass and can be cleaned with ordinary glass cleaners.

Useful tip: When wiping the boat's windshield dry after cleaning, avoid using circular motions. This can leave circular smudges on the windshield that become visible in sunlight, impeding visibility. Wipe off any streaks with dry newspaper or cotton cloth using first horizontal, then vertical motions. Repeat this a few times and you'll bring the windshield to a brilliant shine.

6.5 Care instructions for the stainless steel components

To keep the boat's stainless steel parts, such as rails, handles and bollards, shining as good as new, you should keep the parts clean and waxed. The edges of the mounting flanges of the rails should also be cleaned. Any dirt that remains under the edge of the flange will begin to look like rust. In regular use (i.e. no damage), the parts should be cleaned and waxed at least twice every summer. Rail maintenance should also be performed when the boat is put into winter storage.

6.6 Care instructions for the steering system

The hydraulic steering does not require maintenance under normal circumstances. If the steering starts to feel loose, there is a leak somewhere in the system. Leaks must be repaired immediately!

WARNING!

A hydraulic steering system that has a leak or trapped air in the hoses is extremely dangerous.

6.7 Care instructions for electrical components

Electrical components like main switches, other switches and couplings do not normally need to be serviced if the boat is stored in a dry and well-ventilated place for the winter. If, however, you wish to protect electrical components against oxidation, the best way to do it is by spraying them every now and then with a moisture repellent antioxidant.

6.8 Minor superficial repairs

You can repair minor surface damage to the boat's hull or deck yourself. However, achieving a neat, unnoticeable repair requires a considerable amount of skill:

1. Protect the area around the damage with tape.
2. Bevel the edges of the damaged area and clean with acetone.
3. If the damage is deeper than 2 mm, it is advisable to smooth it with an appropriate polyfiller before painting.
4. Mix topcoat with 1.5-2 % hardener.
5. Fill the repair with more topcoat than needed, so that its surface remains slightly proud of the surrounding area.
6. Carefully put tape over the repair.
7. After the topcoat has hardened, remove the tape and sand the repair using 600 and 1200 paper applying water.
8. Buff using abrasive paste and wax.

The colours used on this boat are specified in the *technical specifications*. One point to consider is that a paint called *gelcoat* has been used in manufacturing the boat, but the surface is always repaired with a paint called *topcoat*. Gelcoat paint does not harden without a mould surface, whereas paraffin has been added to topcoat to allow it to harden.

NOTE!

Some post-delivery installations and alteration work may cause damage to the structure of the boat or impair safety if not performed correctly. Please contact the dealer if you are planning any modifications.

7 Winter storage

Preparing your boat for winter storage is an annual routine. Have your boat lifted in good time before the water freezes. Your boat is not designed for use in ice and it is not meant to be used in temperatures below zero (for example, the rainwater drainage system will freeze up). It is advisable to perform all maintenance, repair and inspection procedures in connection with placing the boat in winter storage.

Familiarise yourself with the service procedures shown in the engine manual. We recommend that you leave them to an authorised service agent. Do not forget to service the remote control and steering system. Make sure to perform their maintenance according to their separate instructions and manuals.

7.1 Measures before winter storage

Wash the bottom of the boat immediately after the boat has been lifted. Algae and slime will come off easier if they are not left to dry. Empty the engine of its cooling water according to the manual.

Give the engine and other equipment their winter servicing, following their separate manuals. If your boat is stored outside or in a humid place over the winter, empty it of textiles and other equipment that may corrode or become mouldy in damp conditions. Wash the ropes in fresh water. Replace any worn ropes. Leave through fitting valves open. Remove the drain plug for the winter.

Empty the septic tank and the freshwater tank of the boat. Pour two litres of a mixture that contains 50 % ethylene glycol and 50 % water into the toilet and press the flush button for about two seconds.

Check the condition of the hull and rub down any scrapes to let possible moisture inside the laminate dry. Repair any damage in the spring before launching the boat.

Remove all food from the boat and wipe all the surfaces on which food has been handled with a disinfectant. This will prevent the formation of mould.

Always cover your boat so that snow cannot gather inside. Always make sure, however, that it is adequately ventilated. A winter storage cover is available as an optional accessory for your boat.

7.2 Measures before launching the boat

Repair any damage to the gelcoat surface according to section 6.10.

In sea areas, antifouling paint should be used to prevent the hull from becoming covered with vegetation. Fouling of the bottom and especially the propeller increases fuel consumption significantly. However, if the boat is anchored at the inlet of a stream or in a land-locked lake, or if it is lifted out of the water at least once every two weeks, it is normally

not necessary to use antifouling paint. Carefully follow the paint manufacturer's instructions when applying the paint. When sanding old antifouling paint, remember that the dust is toxic.

Antifouling paint is not necessary in fresh water (lake areas). We nevertheless recommend using an epoxy primer if the boat will be in the water for several months each year. Fresh water, and warm fresh water in particular, is more readily absorbed by the laminate than sea water.

NOTE! Do not paint over the zinc anodes or the piston rods of hydraulic trim tabs. Do not apply paints containing copper on aluminium parts. Remember to follow the paint manufacturer's instructions.

Useful tip: Do not throw away a used paint brush. A dried and hardened paint brush that has been used for antifouling paint can be reused if you first soak it for a couple of hours in a mix of 2 litres of hot water, 100 ml of vinegar, and 50 ml of baking powder.

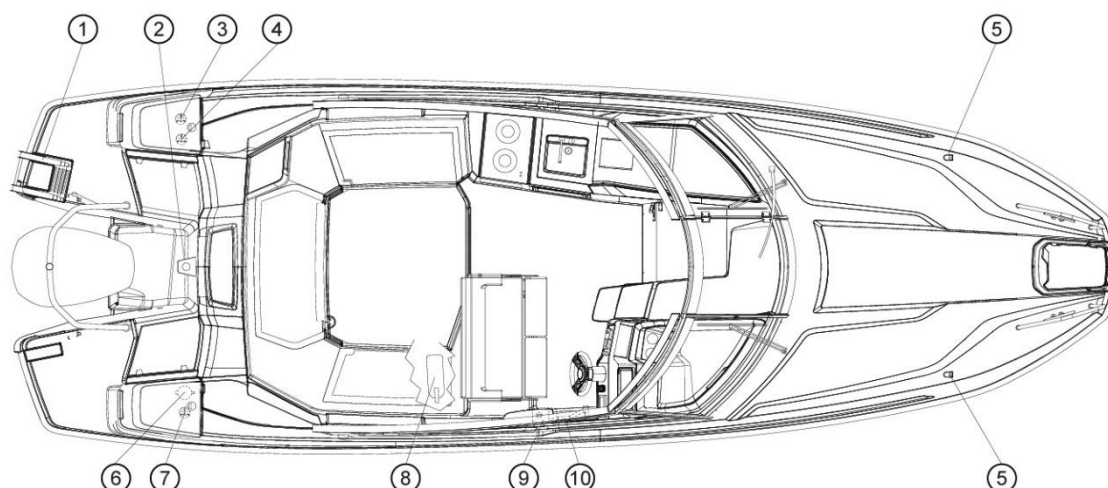
Perform the necessary service procedures required for the engine according to the engine manual. Check the functioning of electric equipment and remove any oxidation from fuse connectors etc.

Remember that petrol goes stale over time, and you must always start the engine with fresh petrol in the spring.

When the boat has been launched you should open all valves in the through fittings (bushings) and check to ensure that there are no leaking hoses or connectors. The locations of through fittings are shown in section 5. Bring your safety equipment back on board before setting out.

8 Layout

8.1 General lay-out



1. Swim ladder
2. Bracket for light pole
3. Fresh water deck fitting
4. Waste water deck fitting
5. Navigation lights, portside and starboard
6. Shower
7. Fuel filling deck fitting
8. Fire extinguisher inside aft sofa
9. Zipwake control panel
10. Gearshift and throttle control for outboard

WARNING!

Handle the boat's hatches with care and watch your fingers and toes. Please pay particular attention to the bow anchor box hatch, which is equipped with an elastic band that holds the hatch closed while driving.

WARNING!

It is not recommended that children do not use the bow anchor box hatch, as their fingers or toes could get caught in it.

8.2 Electrical system

The electrical system of the boat contains the following main components:

1. Starter battery and operation battery
2. Wire harness
3. Main switch panel with main switches and 13 circuit breakers
4. Cabin fuse panel with 9 circuit breakers
5. 6 switches in the panel below the wheel
6. 1 USB output in cabin
7. 1 USB output in centre console
8. Navigation lights (sides and mast)
9. Headlights/searchlights (optional accessories)
10. Trim flap system (optional accessory)
11. 2 windshield wipers (port side optional)
12. Cabin light
13. Defroster for driver
14. Toilet system
15. Refrigerator (optional accessory)
16. Radio (optional accessory)
17. Bow thruster (optional accessory)
18. Anchor winch, stern or bow (optional accessory)

In addition, the engine is an essential part of the boat's electrical system; it both generates and consumes power.

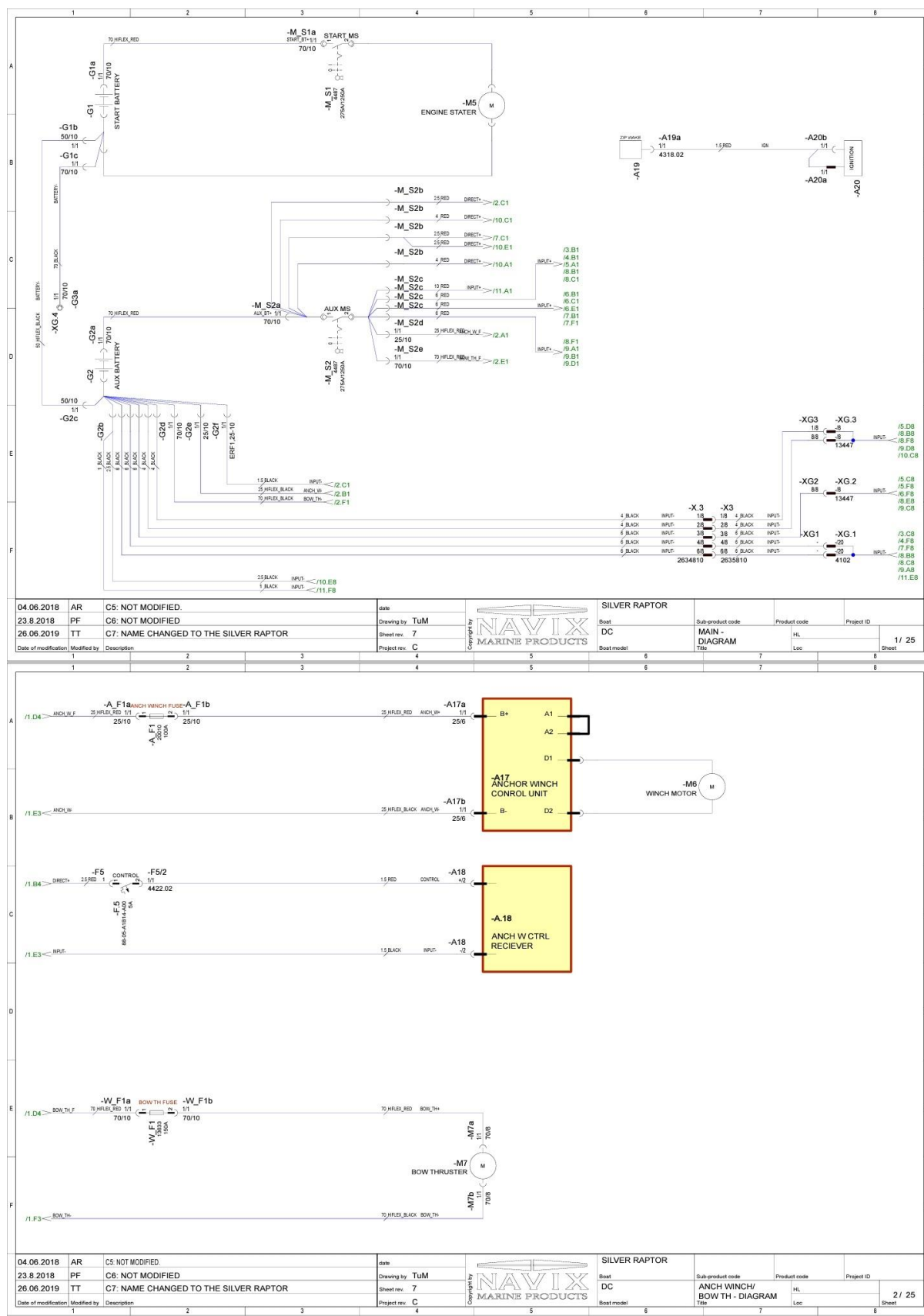


If you connect or disconnect any batteries, take care not to touch both battery terminals with a metal object at the same time.

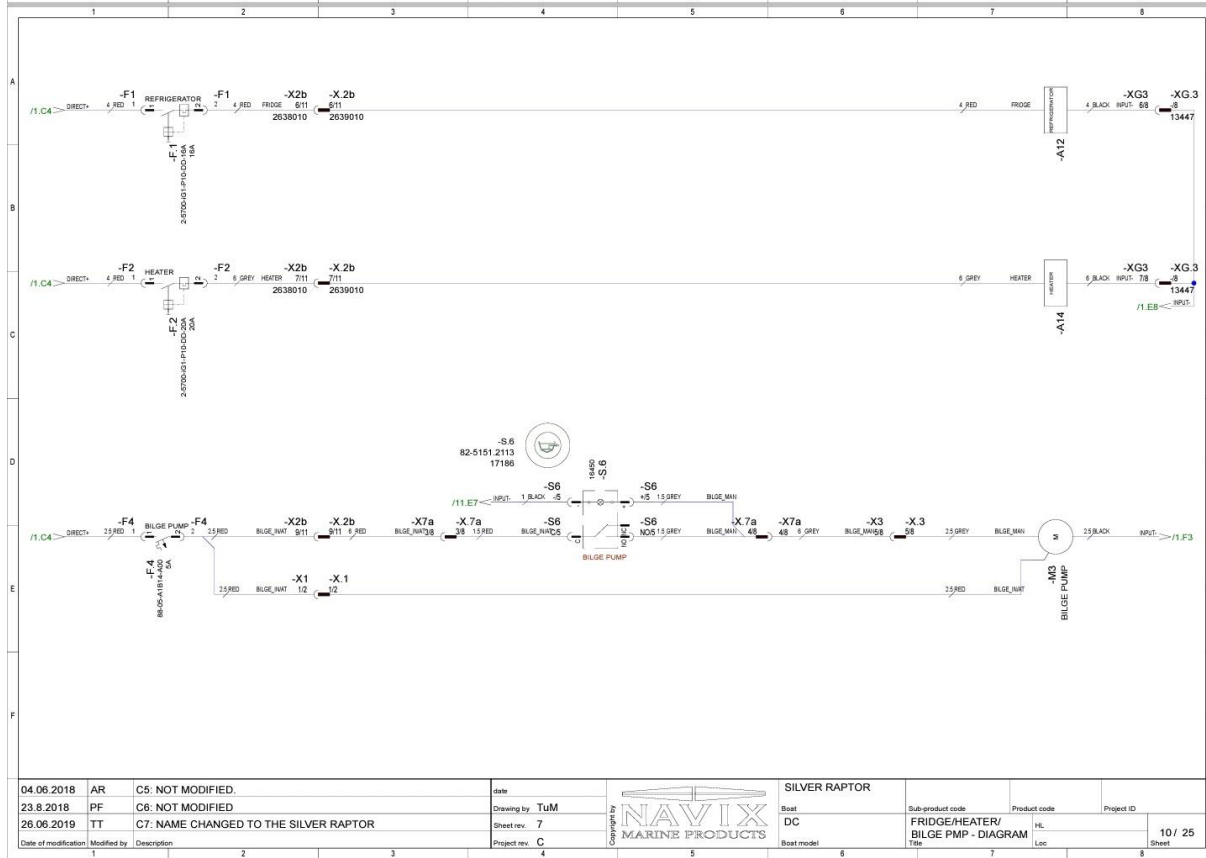
Only recharge the batteries with the boat's battery charger or one with equivalent power. Charging the battery with excessive current creates an explosion risk.

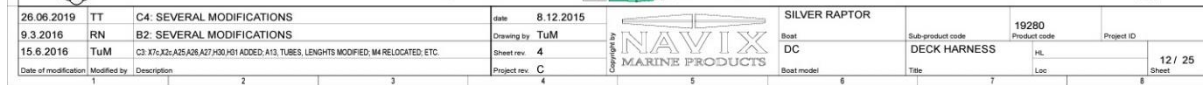
Do not alter the onboard electric system or relevant drawings; alterations and maintenance work have to be carried out by a professional.

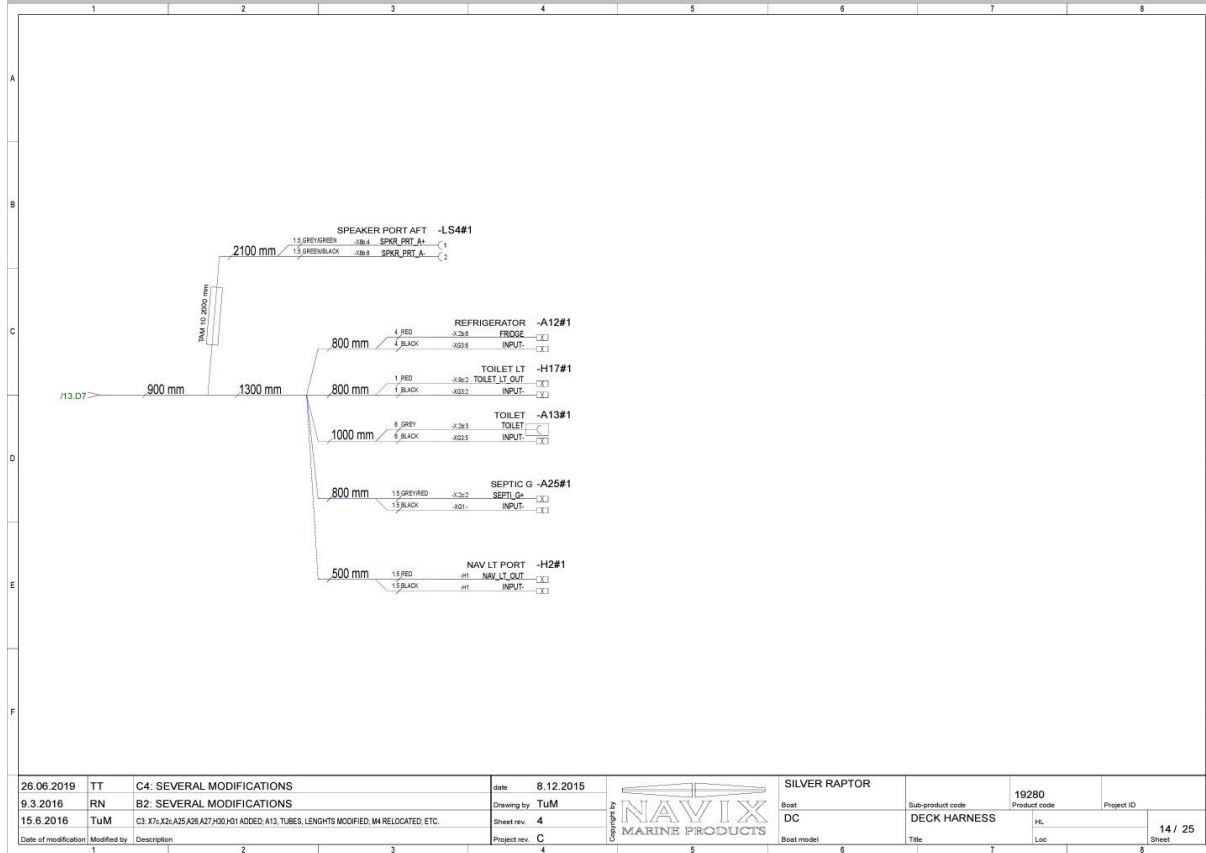
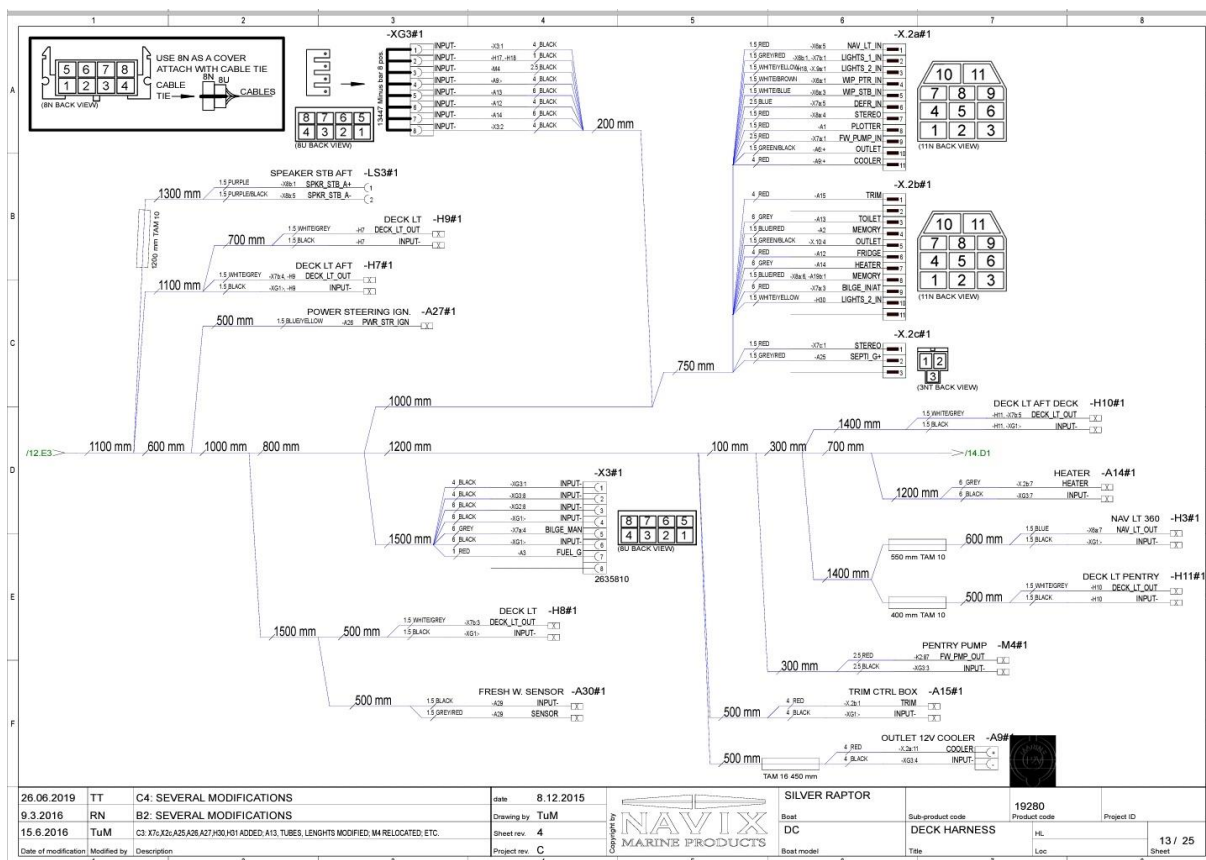
NOTE! Main switches may not be switched OFF if the motor is running as this may damage the electrical system.

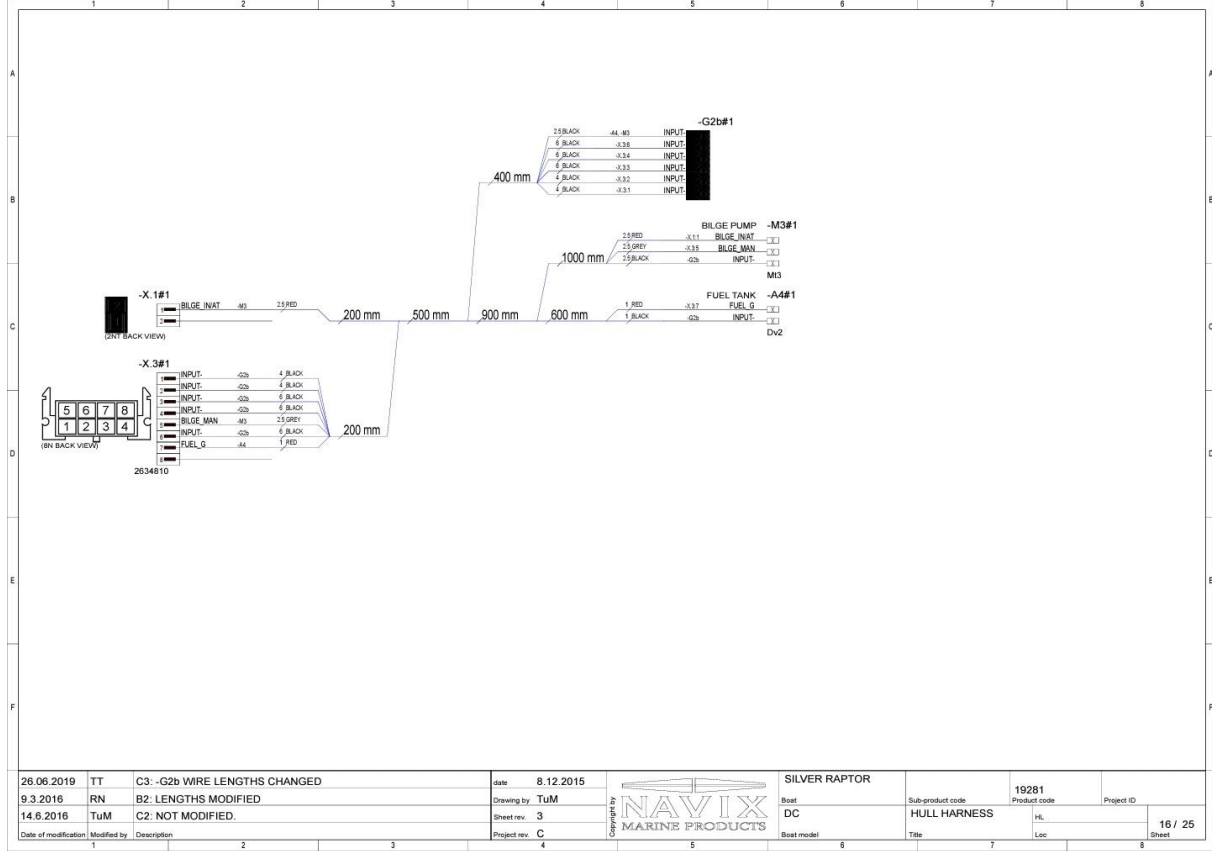
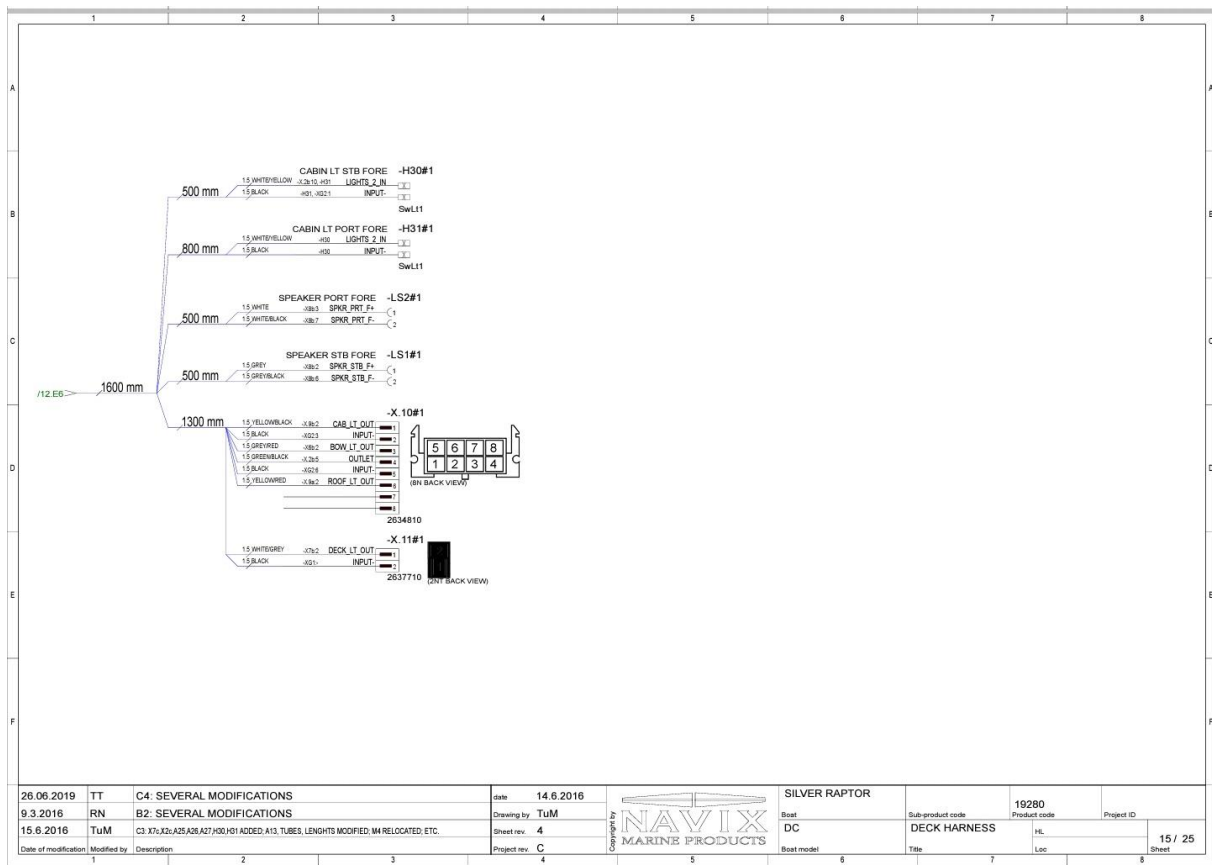


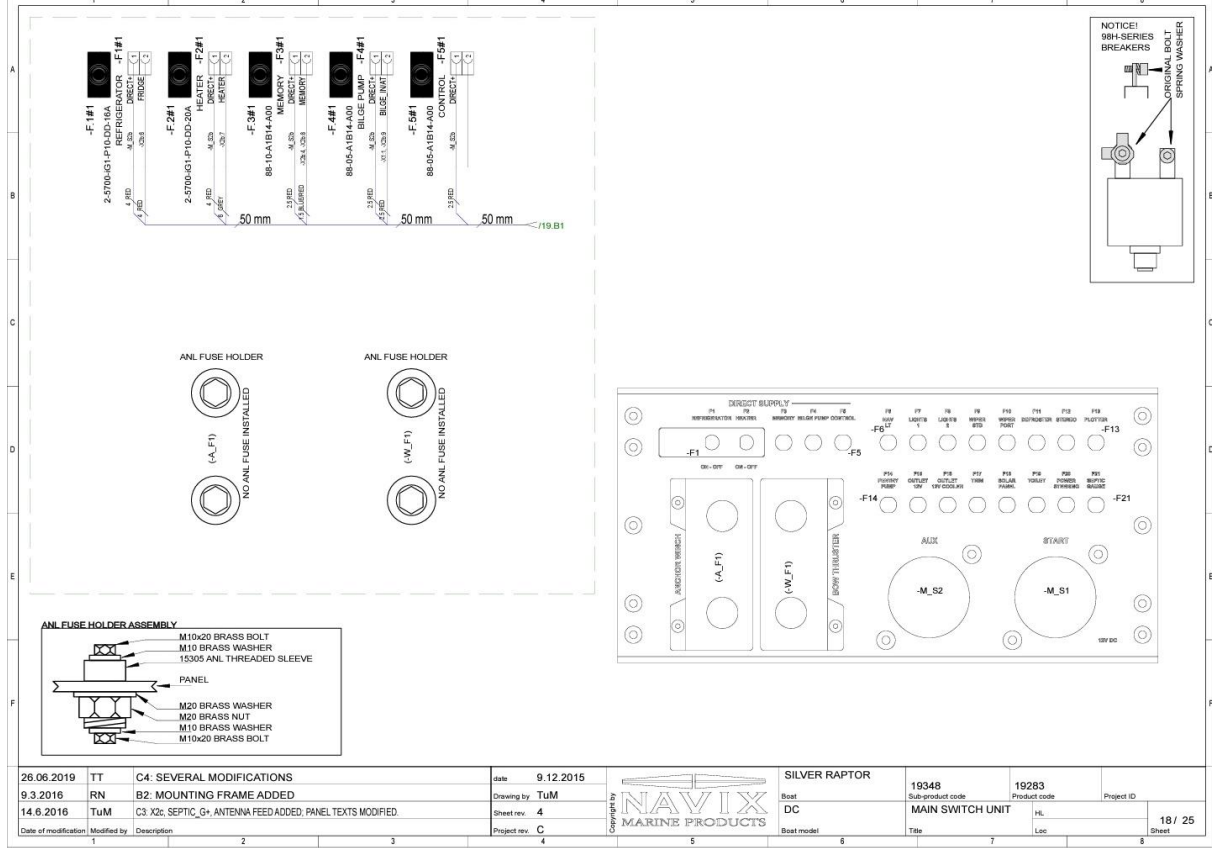
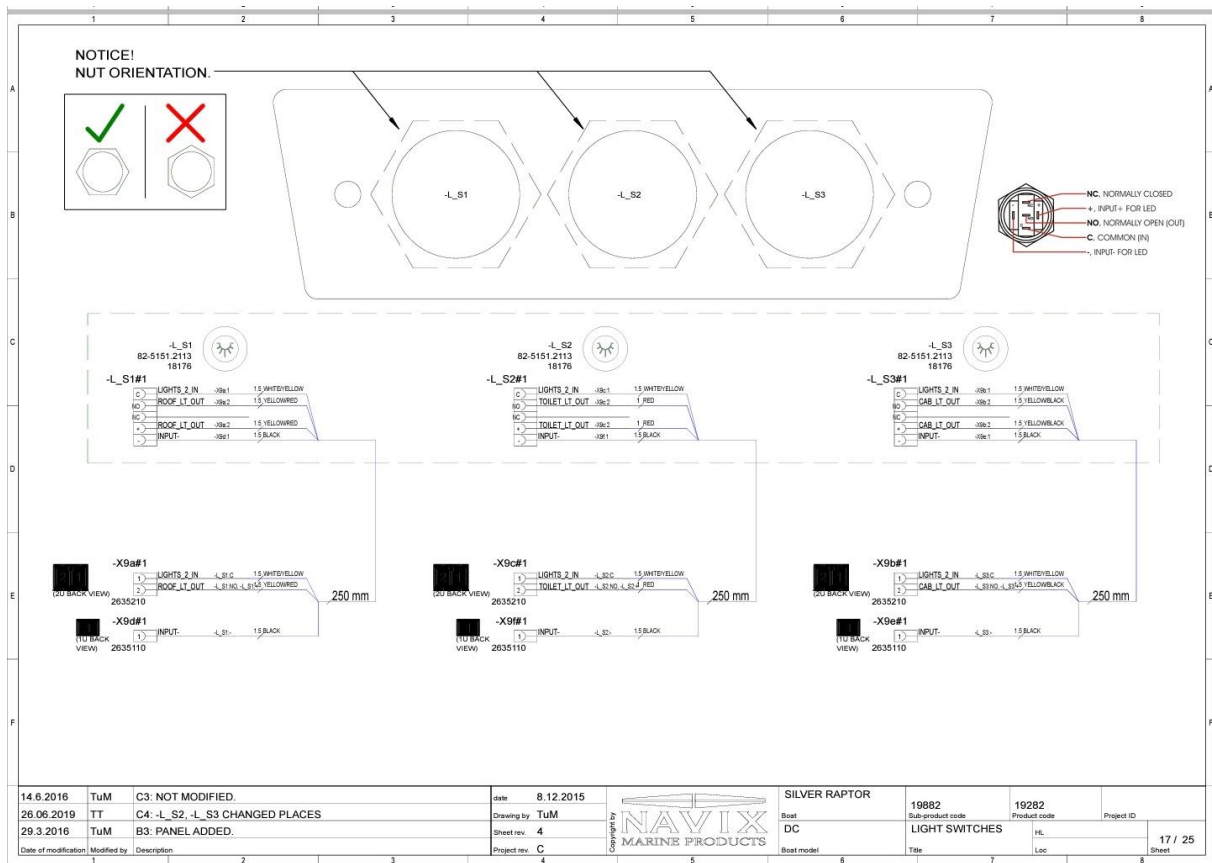


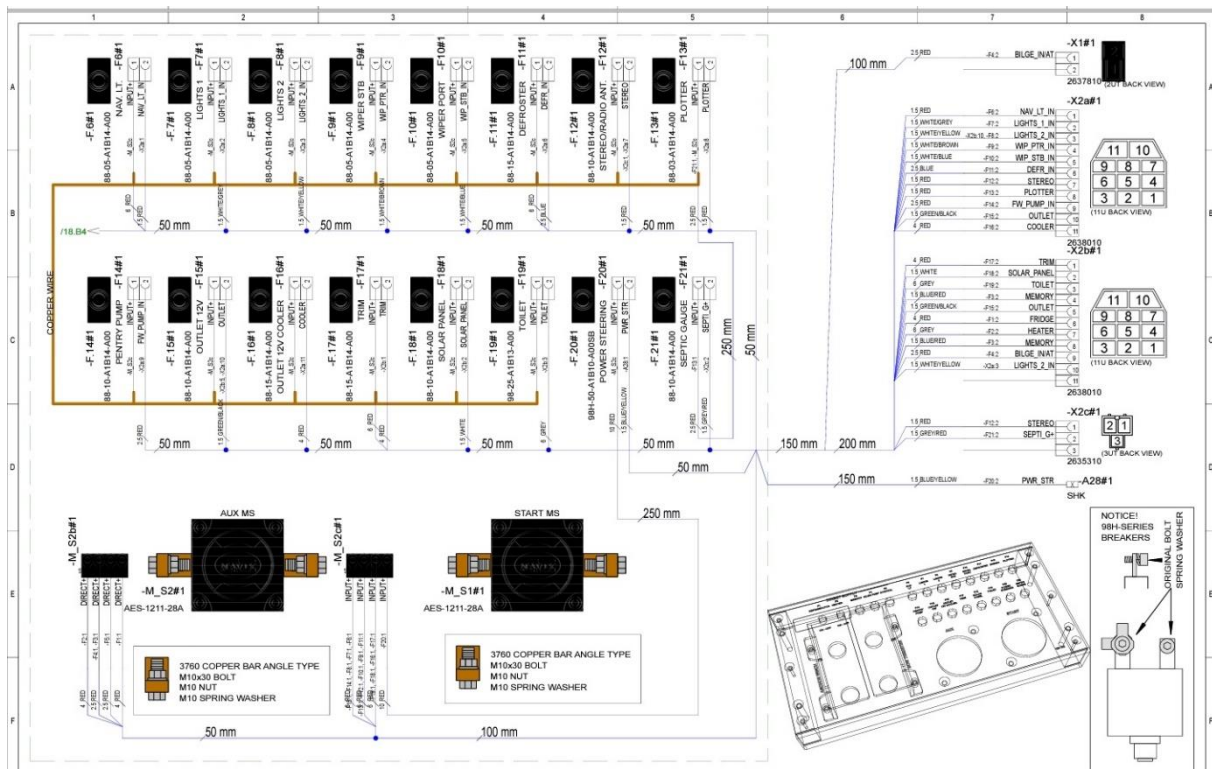












26.06.2019	TT	C4: SEVERAL MODIFICATIONS
9.3.2016	RN	B2: MOUNTING FRAME ADDED
14.6.2016	TuM	C3: X2: SEPTIC, G+ ANTENNA FEED ADDED, PANEL TEXTS MODIFIED.
Date of modification	Modified by	Description

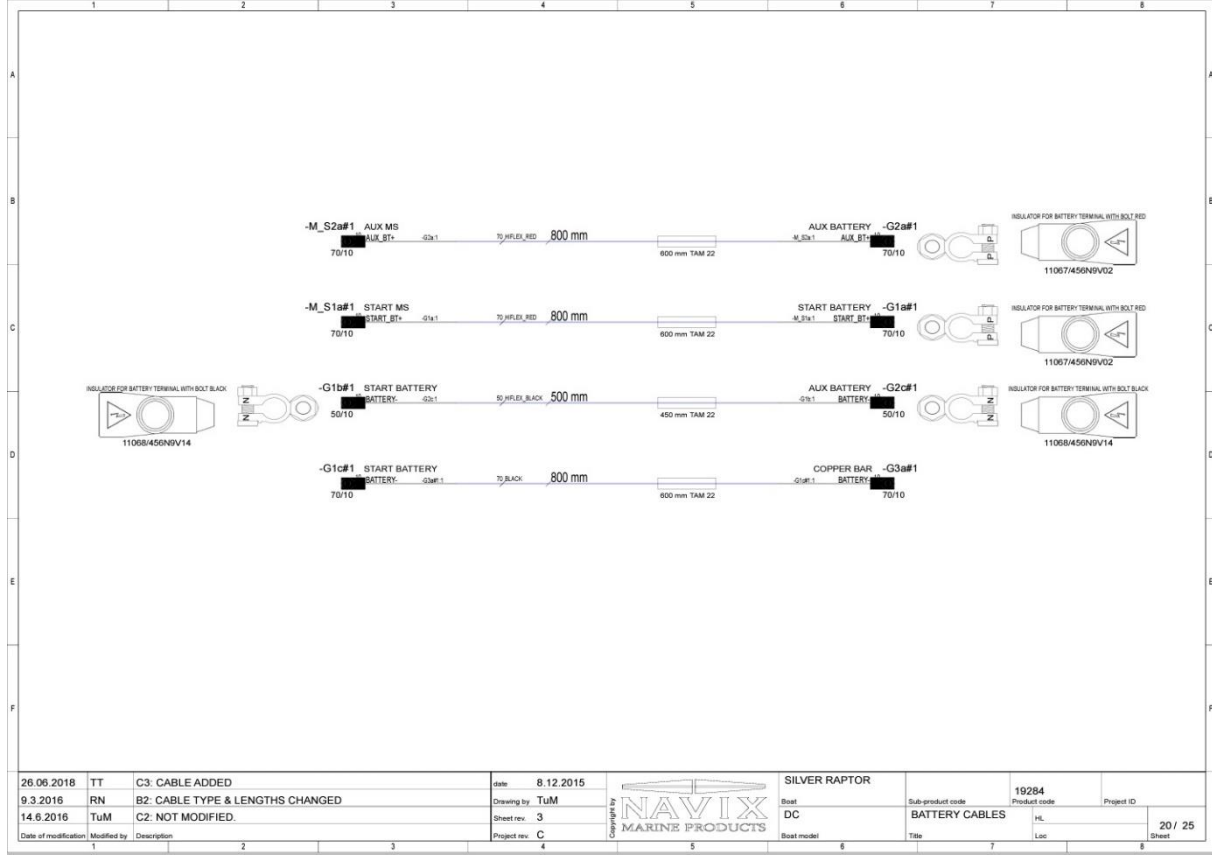
date	9.12.2015
Drawing by	TuM
Sheet rev.	4
Project rev.	C



SILVER RAPTOR
Boat
DC
Boat model

19348	Sub-product code
MAIN SWITCH UNIT	Product code
Title	

19283	Product code
HL	Project ID
Loc	19 / 25
Sheet	



26.06.2018	TT	C3: CABLE ADDED
9.3.2016	RN	B2: CABLE TYPE & LENGTHS CHANGED
14.6.2016	TuM	C2: NOT MODIFIED.
Date of modification	Modified by	Description

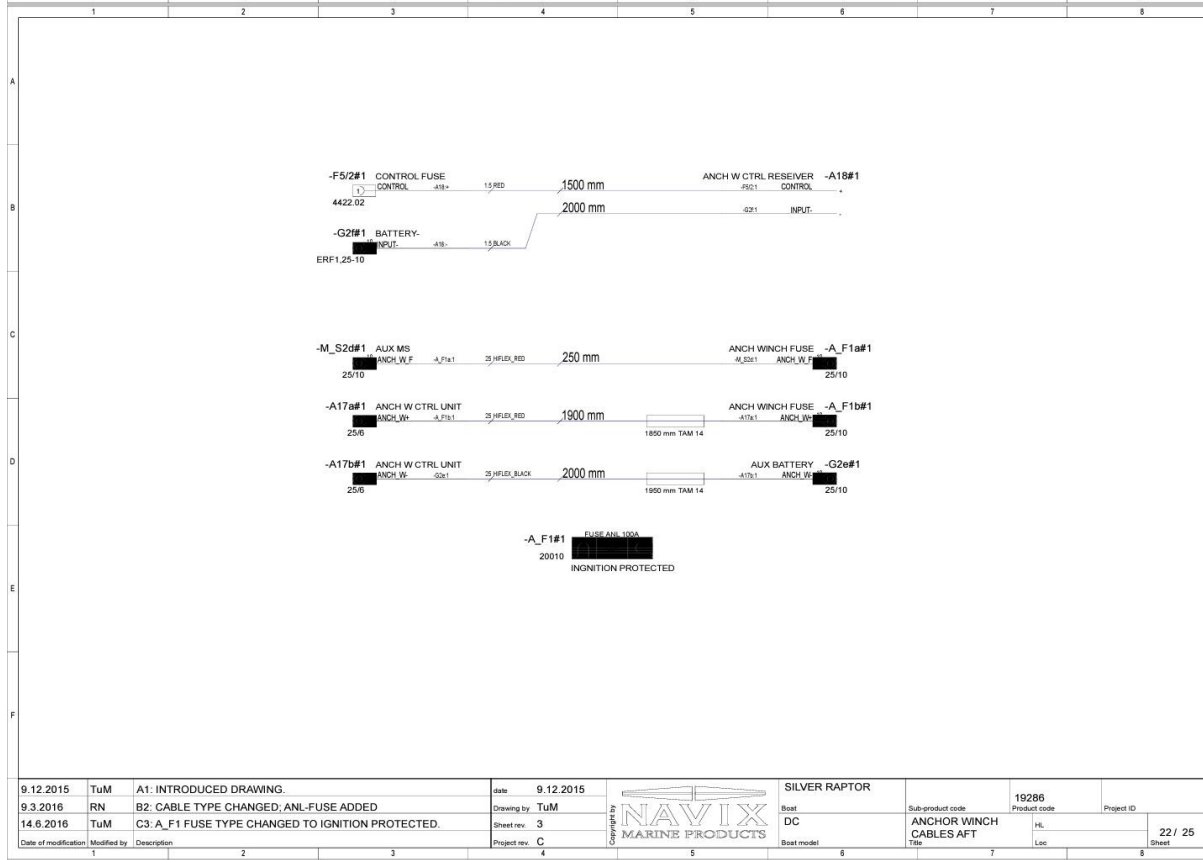
date	8.12.2015
Drawing by	TuM
Sheet rev.	3
Project rev.	C

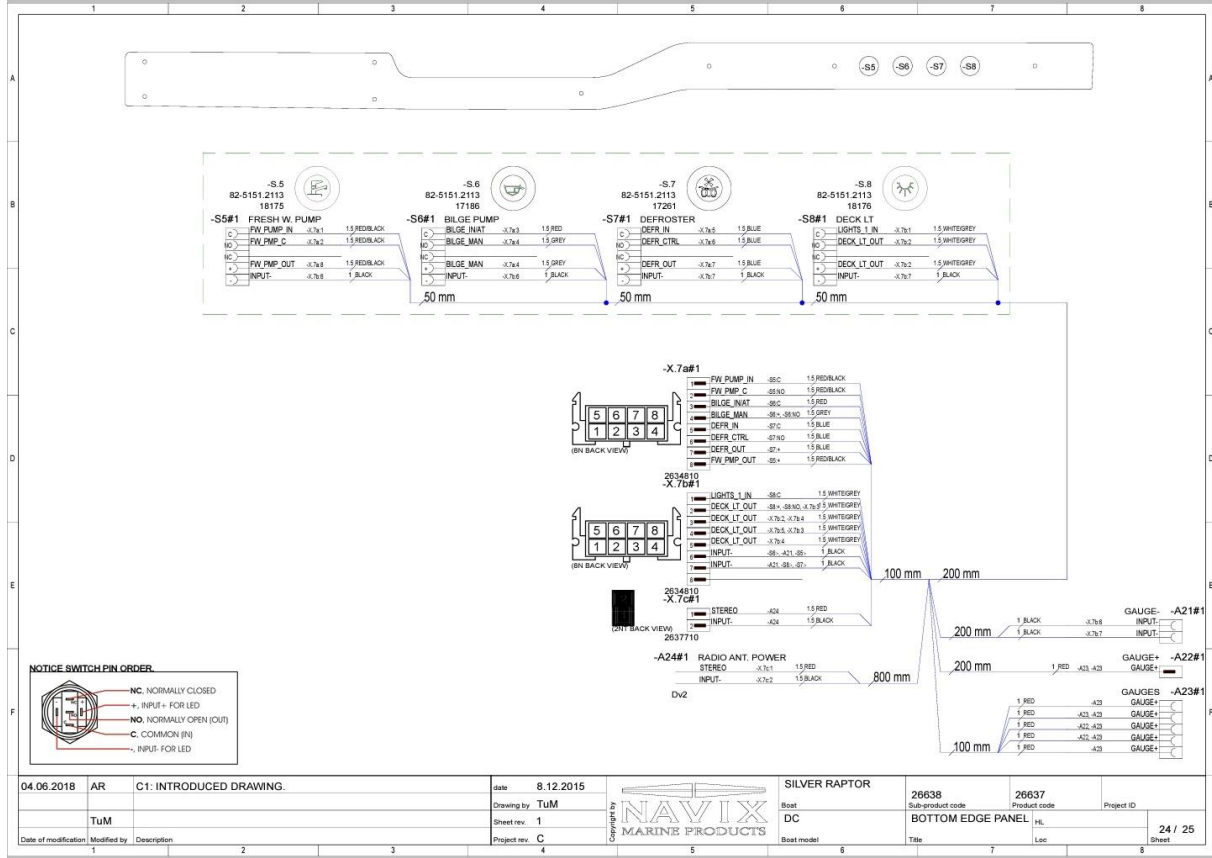
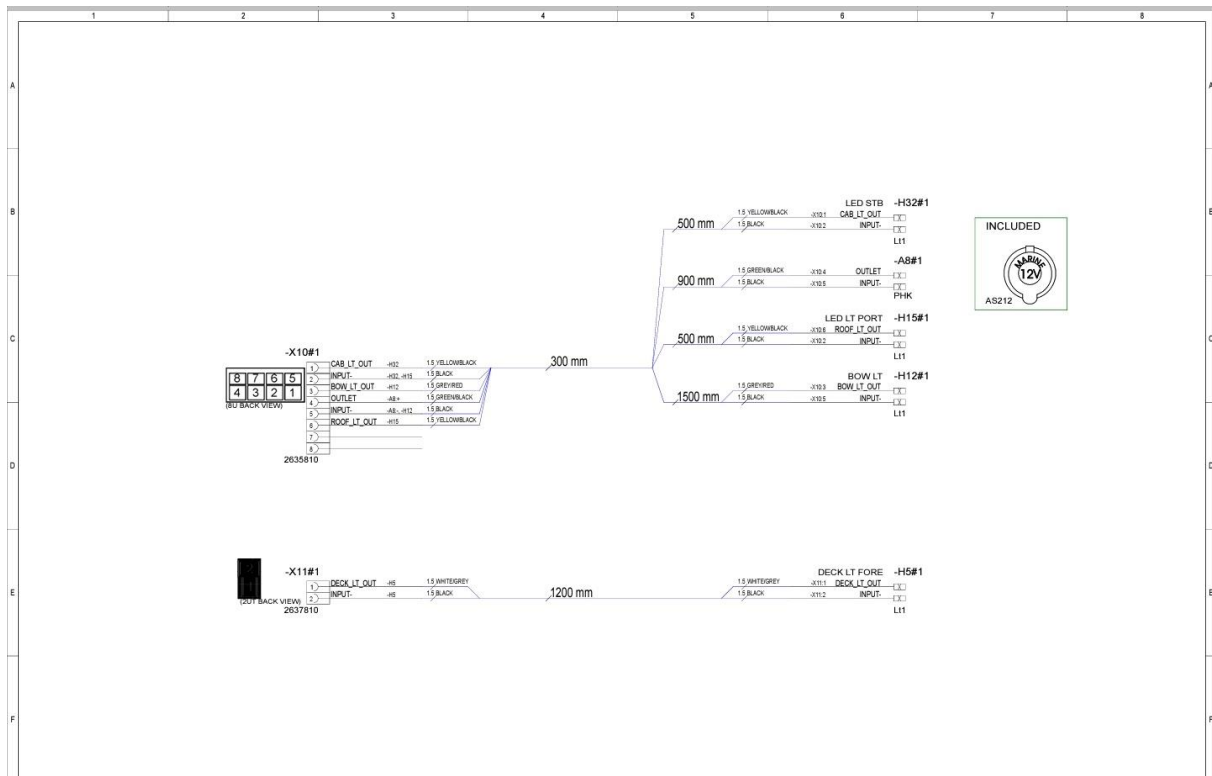


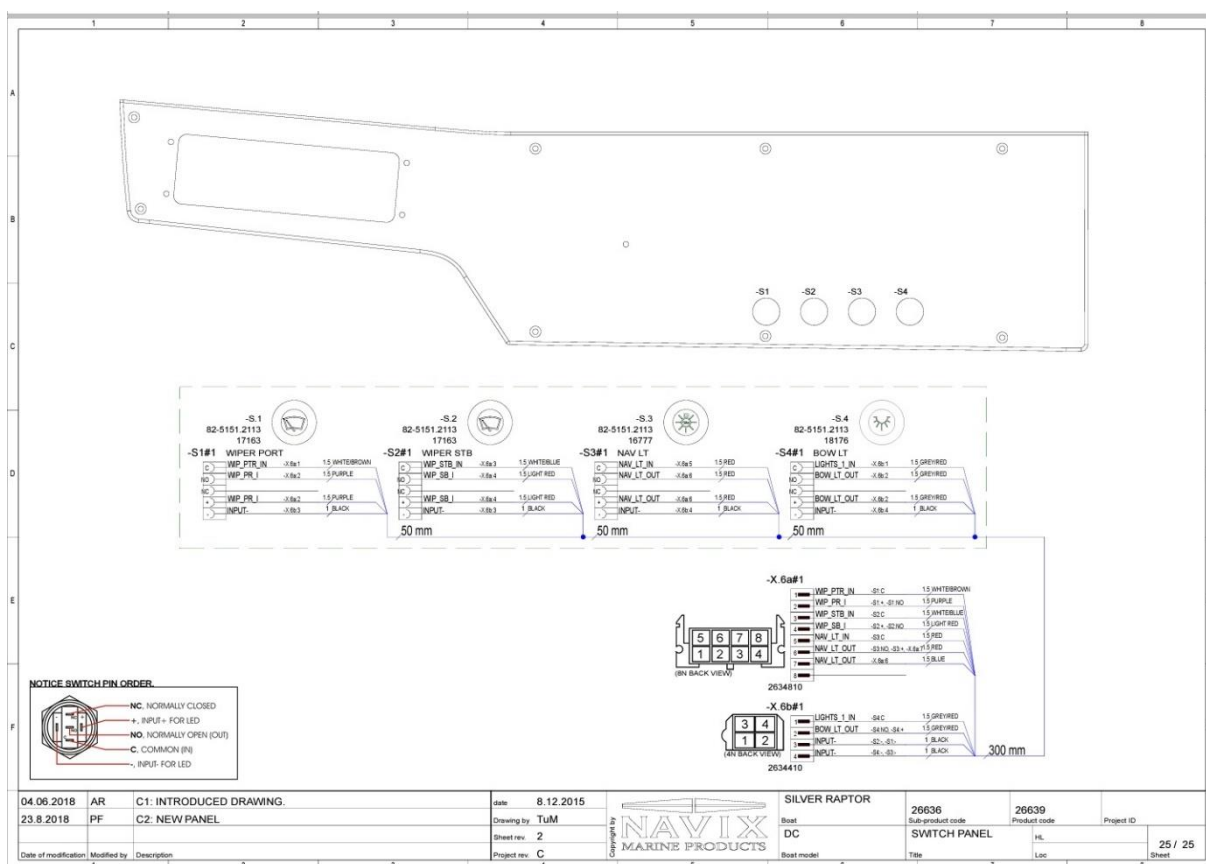
SILVER RAPTOR
Boat
DC
Boat model

19284	Sub-product code
BATTERY CABLES	Product code
Title	

19284	Product code
HL	Project ID
Loc	20 / 25
Sheet	







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